

PUBLISHED WEEKLY



UNIVERSITY OF MICHIGAN
PRICE TWO SHILLINGS
AND SIXPENCE

DEC 20 1954

MEDICAL
LIBRARY

THE MEDICAL JOURNAL OF AUSTRALIA

VOL. II.—41ST YEAR

SYDNEY, SATURDAY, OCTOBER 30, 1954

No. 18

COMMONWEALTH



OF AUSTRALIA

DEPARTMENT OF HEALTH

SUSPENSION OF "PENAQUACAINE G"

Brand of
PROCAINE PENICILLIN G

Suspension of "Penaquacaine G" is an aqueous suspension of Procaine Penicillin G prepared by the COMMONWEALTH SERUM LABORATORIES, containing 300,000 units per c.c. of Procaine Penicillin of which not less than 95% by weight is Penicillin G. It is prepared for intramuscular injection only.

Suspension of "Penaquacaine G" is issued in bottles containing 900,000 and 1,500,000 units respectively, and is available as **Pharmaceutical Benefit Item No. 126.**

COMMONWEALTH SERUM LABORATORIES

Parkville, N.2, Victoria

SPECIFY C.S.L. PRODUCTS WHEN PRESCRIBING

S.L.61

ANDREW'S LABORATORIES

NEOTRACIN

... a wide spectrum antibiotic combination of

BACITRACIN and NEOMYCIN

with priority for topical application
in the therapy of

Staphylococcal and streptococcal Pyodermitis

Infectious Dermatitis

Impetigo contagiosa

Dysidrotic Eczema

Post-auricular Dermatitis

Sycosis Barbae

Folliculitis

Infected Hives and other skin lesions

Infected skin ulcers with secondary infections, etc.

NEOTRACIN OINTMENT
offers topical application
without sensitizing patients
to those antibiotics used
systemically for more serious
diseases.

FURTHER LITERATURE AND INFORMATION
ON REQUEST FROM THE MANUFACTURERS.

ANDREW'S LABORATORIES

15 HAMILTON STREET, SYDNEY

MANUFACTURERS OF DRUGS AND FINE CHEMICALS

NEOTRACIN OINTMENT is
available in 1-oz. and 1-oz.
tubes containing: 500 units
Bacitracin and 3.5 mgm.
Neomycin Sulfate per
gramme.

THE MEDICAL JOURNAL OF AUSTRALIA

VOL. II.—41ST YEAR

SYDNEY, SATURDAY, OCTOBER 30, 1954

No. 18

Table of Contents.

[The Whole of the Literary Matter in THE MEDICAL JOURNAL OF AUSTRALIA is Copyright.]

ORIGINAL ARTICLES—	Page.	COLLEGE OF GENERAL PRACTITIONERS—	Page.
Medico-Legal Aspects of Psychiatry, by John McGeorge, M.B., Ch.M., D.P.M., Barrister-at-law	689	Annual Meeting	723
The Use of Traction in Backache, by E. Haslett Frazer	694	OUT OF THE PAST	724
The Management of Low Back Pain, by Frank May, B.Sc., M.B., B.S., D.M.R. & E.	697	CORRESPONDENCE—	
Some Aspects of Pain in Chronic Rheumatic Disease, by J. F. Drew	701	Appendiceal Colic	725
The Use and Abuse of Physical Treatment in Industrial Medicine, by Leigh T. Wedlick	704	Concerning Proctology	725
The Frequency of Immunization of Rh-Negative Women by Rh Antigens, by Kathleen Clemens and R. J. Walsh	707	The Enigma of the Mona Lisa Smile	725
REPORTS OF CASES—		Rubella (German Measles, Rothein, Rubeola)	726
Ear Complications Associated with Spear Fishing, by D. G. Perrett	709	Neurosis in General Practice	726
A Case of Unusual Uterine Rupture, by B. J. Scanlan, M.B., B.S.	710	Young Doctors and Specialization	726
BOOKS RECEIVED	710	NAVAL, MILITARY AND AIR FORCE—	
LEADING ARTICLES—		Appointments	726
Criminal Responsibility	711	DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA	727
CURRENT COMMENT—		NOTICE—	
Air Disinfection with Ultra-Violet Irradiation	713	Golf Tournament	728
Lumbar Puncture Headache	714	POST-GRADUATE WORK—	
Isoniazid and PAS in Chronic Pulmonary Tuberculosis	714	The Post-Graduate Committee in Medicine in the University of Sydney	728
The Letters of Antoni Van Leeuwenhoek	715	UNIVERSITY INTELLIGENCE—	
Tobacco, Nicotine and the Electrocardiogram	715	The University of Sydney	728
ABSTRACTS FROM MEDICAL LITERATURE—		NOMINATIONS AND ELECTIONS	728
Pædiatrics	716	DEATHS	728
Orthopædic Surgery	716	DIARY FOR THE MONTH	728
BRITISH MEDICAL ASSOCIATION NEWS—		MEDICAL APPOINTMENTS: IMPORTANT NOTICE	728
Scientific	718	EDITORIAL NOTICES	728

MEDICO-LEGAL ASPECTS OF PSYCHIATRY.¹

By JOHN McGEORGE, M.B., Ch.M., D.P.M.,
Barrister-at-law,
Sydney.

THE basis of the following remarks, which are directed to the general practitioner rather than the practising psychiatrist, is the Lunacy Act, 1898. Both the medical and legal professions are too little conversant with its provisions. In addition, each profession approaches this Act with a different mental attitude, largely conditioned by the particular form of training its members have undergone. The greatest divergence of opinion exists on the subject of what constitutes insanity in criminal law. It is often felt that the law and medicine are at odds where this is concerned. This difficulty arises because the medical man fails to realize that the legal definition of insanity, strictly speaking, does not refer to insanity at all but to responsibility at law. This is very well expressed by Earl Jowitt (1954), who said: "It cannot be too often remembered that the McNaghten rules are not a test of sanity

and were not formulated as such. They are a test of responsibility in law for the acts done. I agree that they are illogical; I agree that the test they provide is frequently stretched, and that therefore it may fairly be said to be no test at all. For who can measure responsibility by an elastic yardstick?"

Although these rules were formulated in 1843 and have been subjected to much criticism, mainly by psychiatrists, it must be admitted that no better definition has been submitted in spite of many committees which have discussed the subject at great length. The recommendation of the Atkin Committee was that the rules would be improved if the jury were asked to consider the question of irresistible impulse. This seems a very dangerous suggestion, as it would open the way for all sorts of fantastic theories to be ventilated in court to the complete confusion of the unfortunate jury. In only too many instances the issues are completely obscured by the ramblings of the expert witnesses in the realms of academic phantasy. A question which might well be asked is: "Can the psychiatrist distinguish between those who cannot and those who do not resist an impulse?" The report of the British Medical Association to the recent Commission on Capital Punishment was that there should be included "a disorder of emotion such that, while appreciating the nature and quality of the act, and that it was wrong, he

¹ Read at a meeting of the New South Wales Branch of the British Medical Association on July 29, 1954.

did not possess sufficient power to prevent himself committing it". This amounts to the same thing, and the same criticism applies. This problem will be discussed in a little more detail later. At present we are more concerned with the *Lunacy Act* and especially with the certification of patients.

To the general practitioner it is often a serious matter to have to decide what should be the proper disposal of an insane patient. He has been warned that serious consequences may flow from his failure to take proper precautions in the certification of a patient, yet he knows that urgent action is necessary for the protection of both patient and relatives. Wherever possible he would be well advised to send the patient to the nearest Reception House rather than to certify him himself. There are Reception Houses at Darlinghurst, Newcastle, Orange and Kenmore. The procedure required is a simple one. He issues a certificate in the form of Schedule 2A. This merely states:

I, the undersigned medical practitioner, hereby certify that on the — day of —, 19—, I personally examined (name of person in full), and am of opinion that he is a suitable case for admission to the (name of institution) for observation and treatment.

Dated this — day of —, one thousand nine hundred and —.

(Signature)

(Place of abode)

It is to be noted that there is no mention of insanity. This is a protection for the medical man. However, he must exercise due care. Attention must be drawn to section 4, subsection 3 of the Act. This specifically states that:

If any medical practitioner grants a certificate in the form of Schedule 2A of this Act without having seen and personally examined the person to whom it relates, at the time specified in such certificate, for the purpose of ascertaining the condition of such person to the best of his knowledge and power, he shall for every such offence be liable to a penalty not exceeding fifty pounds.

This subsection was added in 1945 as a result of Fitzgerald's case in which a medical practitioner did issue such a certificate about a neighbour with whom he had had a disagreement and without in any way examining him. He was fined, but he appealed to the Quarter Sessions where his appeal was disallowed, but the conviction was finally quashed by the State Full Court as there was nothing in the *Lunacy Act* at that time to provide for a penalty. It has been suggested that the doctor should give the form to the patient himself and advise him to take it to the reception house. It can well be imagined that he is unlikely to get much cooperation. One can conceive the patient being told: "Here you are, you're silly, take this to the reception house", and his reply, "Yes, but I'm not that silly". Some difficulty may be experienced in getting a patient to the Reception House, but this is a matter for the relatives to arrange, and the doctor should take no active part in it. Sometimes the police will act as escort, although they are under no obligation to do so.

It may be mentioned here that the interests of the medical practitioner are adequately safeguarded if he does take reasonable care before issuing the certificate. There is no need for him to hold a man down on the floor while he takes his blood pressure or wrests a specimen of urine from him for examination. If he converses with him for a reasonable time and satisfies himself that he is in need of care and supervision, that is sufficient. The Act protects him by section 172, which states:

No suit or action shall lie against any person for or on account of any act, matter or thing done or commanded to be done by him, and purporting to be done for the purpose of carrying out the provisions of this Act, if that person has acted in good faith and with reasonable care.

It appears that this affords adequate protection, although, of course, it does not prevent the litigious individual from making a legal nuisance of himself.

Where trouble arises in having a patient removed to the nearest reception house, a warrant may have to be applied for. Police may arrest without a warrant any person who

is deemed to be insane and is found wandering at large or who is discovered under circumstances that denote a purpose of committing some offence against the law, usually by attempting suicide. This action is provided for by section 4 of the Act. Sometimes a psychotic person may be induced to go out into the street where he can be picked up as "wandering at large". This is a somewhat liberal interpretation of the section and a psychiatric subterfuge which may be regarded as mildly discreditable. In three other cases warrants have to be applied for. These are where the individual is insane and in indigent circumstances, is being cruelly neglected and treated, or is not under proper care and control. The last is the most common. The strict procedure is for someone, usually a relative, to give information on oath whereupon the magistrate directs and authorizes some medical practitioner to visit and examine the patient and report in writing to him. If he is satisfied that the person concerned is not under proper care and control he issues a warrant for his removal to the Reception House. This procedure is not as cumbersome as it may sound, for it can all be done within twenty-four hours. However, in a case of extreme urgency a short circuit may be attempted. This consists of the medical practitioner issuing a certificate to the effect that the patient is insane and not under proper care and control, and giving this to a relative, who presents it to the magistrate and gives corroborative evidence on oath. The magistrate may then issue a warrant without further ado. This shortens very considerably the time taken. It is to be noted that section 6, which provides for this action, states quite definitely that the magistrate shall "by an order under his hand direct and authorise some medical practitioner". This is important because it means that the said medical practitioner has a full right to enter the home and conduct such an examination in spite of any objections raised by the patient. If necessary he can seek police assistance in doing so. On one occasion on which such aid was sought, the patient shouted abuse and threats from an upstairs window, and expressed his intention of coming down and removing the intruders by main force. The constable announced that he required no further evidence and proceeded at slightly more than a brisk walking pace to the gate, reaching the same several yards ahead of the psychiatrist, who had come to the same conclusion.

The patient, having reached the Reception House by one of the above means, is then certified by two doctors and an order is made for his removal to the appropriate institution. He can be sent direct to a mental hospital on the certificates of two medical practitioners and the request of some person, usually a responsible relative. If the doctor is sure of his ground and is prepared, if necessary, to defend his certificate in court, this method is quite satisfactory. It is suggested that, unless he has had considerable psychiatric experience, he should not attempt to certify a patient on disorder of conduct alone. He may describe the individual as agitated and restless, but so are many normal people in certain circumstances. It may therefore be very difficult to stand up to searching cross-examination on such a certificate. One is always on much safer ground in describing hallucinations and delusions. If these are sufficiently bizarre, and they usually are, no one can deny that they are evidence of insanity.

It has been suggested that the certifying doctors should not discuss the case at any time as this is "collusion". This statement is quite without foundation. For one thing the term is wrong. Collusion is defined by Osborn in the "Concise Law Dictionary" (third edition) as "The arrangement of two persons, apparently in a hostile position or having conflicting interests, to do some act in order to injure a third person or deceive a Court". It is hardly likely that the two doctors would be in conflict and therefore this would not apply. There is no reason whatever why they should not consult with each other before and after interviewing the patient as long as they do not examine him together. It appears from section 13 that a more careful examination is required before writing the medical certificate than is expected when the Schedule 2A

is issued. It will be recalled that the medical practitioner must not give such a certificate without "having seen and personally examined" the person. In the case of a medical certificate of insanity the above section requires that the person must be "seen and carefully examined". Note the word "carefully". This is very important, for one may be asked at a later date how thorough that examination was. A penalty of fifty pounds can be imposed for failure to observe this precaution.

Other points concerning the certifying of patients are that an order committing a person to an institution holds good for twenty-eight days from the earlier of the two certificates, while in the case of a request it is valid for only ten days. In a case of emergency a patient may be admitted on only one certificate, but the second certificate has to be obtained as soon as possible. A fact which is not generally known and may be of interest is that a patient who has escaped from a mental hospital and is not recaptured within twenty-eight days is discharged, but if he is an escapee from a criminal mental hospital he may be retaken at any time.

What has been said covers the requirements of the average general practitioner, but there are one or two aspects of the *Lunacy Act* which have to be referred to as they do occasionally come within his purview. For example, he may be asked to give evidence as to the fitness of an accused to plead at the trial. This issue is raised under section 65. A certain standard is required as otherwise it would not be fair to subject a prisoner to the ordeal of a trial. He is expected to have some general knowledge of the functions of a judge and a jury, to be able to challenge jurors (this is a mere formality as his counsel usually advises him on this point), and, most important of all, he must be able to instruct his counsel on his defence. It would be a travesty of justice if he had no conception of what was being said about him and could not tell his counsel where the Crown evidence was at fault. It is essential that he should be capable of taking an intelligent interest in his trial. Should he be found insane and unfit to plead, he is dealt with under section 66 and is sent to a criminal mental hospital on the order of the Colonial Secretary without any medical certificates. It is conceivable that a difficult situation could arise when a jury found the accused unfit to plead in the face of medical evidence to the contrary and a perfectly sane person was ordered to be sent to the institution. This is by no means beyond the bounds of possibility for juries do some extraordinary things these days. Only recently they found a man sane and guilty at the time of his offence, although shortly after it he had been found insane and unfit to plead and had spent the following eighteen months in a mental hospital and had been returned to stand his trial only a few days before. Two psychiatrists, for once in complete agreement, were the only medical witnesses called and both were positive that he had been insane when he committed murder. This is one of those things which "passeth all understanding".

The accused may be, but rarely is, certified before his trial as a matter of urgency. It is usual to raise the issue of fitness to plead instead. Section 66 covers this and also provides for a verdict of "not guilty on the grounds of insanity". If the prisoner is genuinely insane he will be certified in the ordinary way and sent to a criminal mental hospital at a later date. When he has recovered he will be returned to gaol and his release will later be considered. He is known as a Governor's pleasure prisoner because the Act specifies that he is to be detained "until the Governor's pleasure be known". Provision is also made by section 67A for a patient in a criminal mental hospital to be brought to trial on the issue of fitness to plead. Two sections, 67A and 76A, have been added to the *Lunacy Act* in recent years. There is an interesting history behind this. Boyd Sinclair, a young schizophrenic, was convicted of murdering a taxi-driver in 1936. Since that date he has been in a criminal mental hospital. Only recently he was again before the court for a determination of his sanity. Section 76A provides that a judge may order the superintendent of the hospital to bring the confined person before

him for examination on this question. This section was specifically added for the benefit of this particular individual. He was adjudged insane and returned to the hospital. Further representations (re B.S., 1946, 46 S.R., N.S.W., 77) resulted in the addition of section 67A in order that the issue of fitness to plead might be raised. At this trial five psychiatrists gave evidence that he was unfit to plead, but a woman member of Parliament and two clergymen said he was. Needless to say the jury accepted the latter evidence, being naturally suspicious of experts, particularly when they are psychiatrists. He was tried and convicted. He had to be recertified immediately as his mental condition became acute.

It is felt that the interests of the patients are adequately safeguarded in spite of popular belief to the contrary. It seems strange that anyone should think that the authorities have anything to gain by detaining a person in an institution. Section 97 permits a relative or friend to apply to the Inspector-General of Mental Hospitals or to an official visitor requiring that the patient should be delivered over to their care and such patient may be discharged on the undertaking that he shall be taken care of and prevented from doing himself or another an injury. If the superintendent thinks it unsafe to release him, the relatives have another course open to them. By virtue of section 100A they may apply for the official visitors to hold an inquiry, and they in turn are authorized to consult two independent psychiatrists in the matter, and if they find that the patient is detained without sufficient cause they may order his discharge. It must be remembered in this connexion that there are non-medical members of the board of official visitors. Should this fail there is still recourse to be had to section 99 which permits a judge who has received information on oath to order the patient to be brought before him for examination. This should serve to allay the fears of those who believe that patients are wrongfully detained in mental hospitals. Quite apart from this the patients themselves have access to the official visitors at their regular monthly visits.

There are only two other sections which may be important. These are section 102, which deals with the appointment of a committee of the estate of a person who is found to be of unsound mind and incapable of managing his affairs, and section 103, where a person is, through mental infirmity, arising from disease or age, also so incapable. The first of these is known as an "insane person", and the second as an "incapable person". The individual who has been certified in the ordinary manner is referred to as an "insane patient". Unless the person is difficult to control it is usual to operate under section 103 and have him declared an incapable, rather than an insane, person. This course is adopted to protect the interests of the person concerned and is often necessary in the case of senile or organic mental deterioration where antagonism to the relatives develops and which may be taken advantage of by some unscrupulous individual. The process is by affidavit upon which the deponent may be cross-examined in court. It is therefore wise to determine that the patient is incapable by close questioning as to the nature and extent of his assets and whether he is intending to make any gifts of an extravagant or undesirable type. It must always be remembered that it is a very serious matter to take the administration of an estate out of the hands of its rightful owner.

Responsibility of the Insane at Law.

The next consideration in forensic psychiatry is the responsibility of the insane person at law. This may be dealt with under four headings.

Criminal Law.

Here the accepted standard is that set by the *McNaghten Rules* which have already been mentioned. Daniel McNaghten shot and killed a man named Drummond, who was the secretary of Sir Robert Peel, under the impression that he was shooting Peel. He had delusions of persecution, and the question of his responsibility was raised at his trial. The House of Lords put the matter to the judges

and they held that if a person knew the nature and the quality of his act and knew that it was wrong he was then responsible at law. It was also decided that if he had a delusion in some other respect unrelated to his crime he could not plead insanity. This was termed "partial delusion". It must be quite obvious that a medically insane person could fail to meet the requirements of the McNaghten Rules and be found guilty. The partial delusion theory has led to some peculiar decisions. For example, a man who had the delusion that his wife was unfaithful to him with A, B and C but shot Z was found guilty and hanged. In Townley's case (re Townley, 1863, 176, E.R., 387) it was held that if a man were to kill another, fancying himself to be exercising his prerogative as a king to execute the other as a criminal, he would not be responsible, but if he had a delusion that he was the Prince of Wales it would be no defence because the latter would have no such prerogative. And yet people accuse psychiatrists of strange pronouncements!

In Australia the interpretation of the McNaghten rules has always been more liberal than in England. One of the best discussions of their application was that of Mr. Justice Owen Dixon in *R. v. Porter* (1933, 55, C.L.R., 182), who said:

The question is whether he was able to appreciate the wrongness of the particular act he was doing at the particular time. Could this man be said to know in this sense whether his act was wrong if through a disease or defect or disorder of the mind he could not think rationally of the reasons which to ordinary people make that act right or wrong? If through the disordered condition of the mind he could not reason about the matter with a moderate degree of sense and composure it may be said that he could not know that what he was doing was wrong.

Attention is directed to a very important phrase in this judgement, that is "he could not reason about the matter with a moderate degree of sense and composure". The standard set is only a "moderate degree". In England, it is submitted, the standard is too high. Archbold (1954) quotes with tacit approval the judgement in *Windle's case* that "the word 'wrong' means contrary to the law and does not have a further meaning of morally wrong" (*R. v. Windle*, 1952, 2 Q.B., 826). This unfortunate man and his wife represented an example of *folie à deux*. He gave her 100 aspirin tablets which cured her headache, permanently. He said to the arresting police: "I suppose I'll be hung for this"—a prediction which proved correct, for it was held that this statement showed that he knew it was wrong, and hanged he was. Our own High Court distinguishes between morally wrong and legally wrong. This is important from the psychiatric point of view, for it is often found that an acutely depressed patient who has killed his wife and family may well know what he is doing and ring the police to give himself up, thereby proving that he knows it is legally wrong yet have committed the act in the belief that he had every moral right to save his family from some terrible, but entirely imaginary, fate. If the McNaghten rules were strictly adhered to he would be found guilty in spite of medical evidence to the contrary. This was so in *Rivett's case* (34 Cr. App., R., 87), in which both prosecution and defence experts were in agreement that he was a schizophrenic, but the jury found him guilty and it was held by the Court of Criminal Appeal that "the issue of insanity is one for the jury and not for medical men, however eminent". One might be forgiven for feeling that this was a dictum more suitable to "Erewhon" than the Criminal Appeal Reports. Fortunately our courts have refused to be bound by *Windle's case* and in *R. v. Stapleton* (26 A.L.J., 453) a distinction was made between morally and legally wrong and it was stated that:

In criminal cases, the test of insanity is whether the accused knew that his act was wrong according to the standards of reasonable men, not whether he knew it was wrong as being contrary to law.

In criminal cases it is often asked to what extent alcohol may act as an excuse for an offence. In some instances the degree of intoxication may be so great as to

amount to insanity, in which case the McNaghten rules would apply. In the case of the Director of Public Prosecutions v. Beard (1920, 14 Cr. App. R., 159) the court ruled that where insanity has been produced by drunkenness the supervening insanity, even though it be but temporary, is just as much a defence as insanity produced by other causes. The presumption that a man intends the natural consequences of his acts may be rebutted, in the case of a man who is drunk, by showing his mind to have been so affected by drink that he was incapable of knowing that what he did was dangerous (*R. v. Meade*, 1909, 1 K.B., 895). This means that, in the absence of such intent, the charge of murder might be reduced to manslaughter, or that of inflicting grievous bodily harm to malicious wounding. The latter might seem strange, for the word "malicious" suggests a deliberate act, but the *Crimes Act* defines it as "an act done without malice but with indifference to human life or suffering" as well as an act done deliberately. On the other hand it was held quite recently (*R. v. McCarthy*, 1954, 2 W.L.R., 1044) that in considering the question of provocation the jury was not entitled to take into account the fact that the accused was the worse for drink, and as a result might be more excitable and likely to lose his self-control if provoked, and that the test to be applied was whether a reasonable person in consequence of the provocation received could be driven through transport of passion and loss of self-control to the degree and method and continuance of violence which produced death. The circumstances were that a homosexual made an approach to an intoxicated man who became infuriated, knocked him down and bashed his head on the roadway, causing multiple fractures of the skull from which he later died. The accused, on the above direction to the jury, was found guilty of murder and an appeal was also disallowed.

What has been said should indicate the great importance of a careful examination of an individual under the influence of alcohol who may be later charged with an offence. The degree of drunkenness must be estimated as accurately as possible in order that the corresponding degree of responsibility may also be determined. The law is chary of accepting a defence based on drunkenness, and this has an historical significance, as pointed out by Glanville Williams (1953). He says: "The true reason why drunkenness was disregarded (i.e. in a report by the Criminal Law Commissioners) was because it was thought that drunkenness being a voluntary act, and being, moreover, immoral if not illegal, ought not to be an excuse." The view of the immorality of intoxication has changed, but the law remains the same.

Other defences which may be raised to excuse a crime are epileptic automatism and amnesia. It is well known that epileptics after a fit or as an epileptic equivalent may carry out quite a complicated series of acts without being consciously aware that they are doing so. There are two things to be borne in mind when one is asked to subscribe to such a defence. One is that the act performed is often a perseveration of one being carried out at the time of onset of the automatism, and the other is that it is commonly one which the person is accustomed to doing. The classical example of the former is that of a mother who was slicing bread and recovered to find herself hacking at the arm of her child who had been standing beside the kitchen table, and of the latter that of a London cabby who drove all round the streets without being aware of it (the comments of his passenger have not been recorded). One can only conclude that opinions expressed to explain some offence on the grounds of automatism are, at best, the result of ignorance of psychiatry. Some eighteen years ago a considerable weight of evidence was called to explain how the accused killed a man and disposed of his body in a state of automatism. Recently interviewed, the prisoner laughed at the suggestion and freely admitted that it was done for two reasons—a grudge and robbery. Charles Mercier in his book "Crime and Insanity" many years ago expressed it very well when he said:

When automatic action does take place after any one fit, it follows other fits in the same person and is always of the same type in the same case. The action is not necessarily the same, but it has the same general character.

It is suggested that an electroencephalogram should be done wherever a doubt arises, for it is a reckless and most improper thing to raise such a defence on nothing but the flimsiest of evidence of epilepsies.

Amnesia is frequently difficult to prove or disprove. It is a very common defence in some form or other. So many accused have peculiar lacunar gaps in memory. These have never occurred before or since the offence, but by some strange working of Providence they happen at the crucial moment only. Had the amnesia manifested itself five minutes earlier, the victim would still be alive. This never happens. The story one so often hears is that the accused remembers everything clearly up to the time of the fatal shot, then comes the "blank", or sometimes it is a "blackout", lasting a variable time but always covering a period about which embarrassing questions might be asked. It obviously cannot be organic, and, if genuine, could only be functional. Yet one rarely, if ever, obtains a history of previous neurosis which, of course, renders this amnesia suspect. Irreverent young psychologists have even cast doubts on the classical case of the Reverend Ansell Bourne, who was investigated by Professor James, and they have had the temerity to suggest that a nagging wife may have been a prime factor in the causation of his celebrated "fugue". It is recommended that an amnesia which is so convenient as a defence should be carefully scrutinized before an opinion is expressed that it is genuine. Now for some other aspects of responsibility which are not of any great importance to the medical practitioner.

Responsibility in Tort.

A tort is a civil wrong for which damages may be obtained at common law. In an action for assault with battery (*Morris v. Marsden*, 1952, 1 T.L.R., 947) it was held that the defendant knew the nature and quality of his act but did not know that what he was doing was wrong. This, of course, would have been an adequate defence in criminal law, but *Stable J.* refused to apply the *McNaghten* rules and ruled that the defendant was liable. This is a decision which had been arrived at as far back as 1901 in New Zealand in the case of *Donaghy v. Brennan* (1901, 19 N.Z.L.R., 289). The legal position appears to be that "a lunatic who converts another's property to his own use under the insane delusion that it is his own, or who publishes a defamatory statement under the insane belief that it is true, is just as liable as if he were sane" (*Salmond*, 1945). Where negligence is concerned one has to consider the defendant's knowledge or means of knowledge. Insanity may therefore be relevant as evidence that such did not exist. The matter is still far from being decided and there are no satisfactory precedents.

Responsibility in Contract.

Anson (1947) states:

The contract of a lunatic is binding upon him unless it can be shown that at the time of making the contract he was wholly incapable of understanding what he was doing and that the other party knew of his condition. This may appear a strange state of affairs to the layman, but it has been upheld on several occasions. In *Imperial Loan Co. v. Stone* (1892, 1 Q.B., 601) it was laid down that the person with whom the contract was made had to know that he was so insane that he was not capable of understanding, and a general repudiation to this effect was not sufficient to void the contract.

Responsibility in Divorce.

Insanity may be no bar to marriage. It would depend on the person's understanding of what was taking place. If it is subsequently shown that there was no proper understanding, the marriage could be annulled. English law by virtue of the *Marriage of Lunatics Act*, 1811, holds that

marriages of insane persons are void if they are certified. Dicey (1949) suggests that:

In some cases it is possible that the matter might be classified as one affecting the consent of the parties to the marriage ceremony and so referable to whatever system of law is held to govern this question.

In passing it may be mentioned that insanity has been regarded as a satisfactory defence to a charge of cruelty by a petitioner seeking a divorce. In *Swan v. Swan* (1953, 3 W.L.R., 591) the court held that where an insane person is unaware of the nature and quality of his acts it is not open to the courts to pronounce a decree of divorce on the ground of the cruelty of that person.

Testamentary Capacity.

A medico-legal problem which not infrequently confronts the general practitioner is that of testamentary capacity. It may be very difficult to determine whether there is such impairment of memory and of understanding as to render a person incapable of making a will. Still more difficult is the case in which there appears to be some hostility towards a relative which might be without real foundation. It is not always easy to distinguish between the irascibility and petulance of the aged and a state which borders on the delusional. It is mostly in the case of aged testators that the question of capacity arises. It often happens that relatives find them extremely difficult to manage, while housekeepers and nurses can persuade them to do almost anything. A doctor who witnesses a will or gives a certificate of testamentary capacity must apply his mind to two questions. Firstly, he must ask himself if the person has a reasonable knowledge of the nature and extent of his property and how much he has in the bank, and, secondly, he must satisfy himself that the testator has no unreasonable, illogical or pathological antagonism towards someone who might fairly expect to be a beneficiary under his will. In the case of a will which on the face of it seems rational the onus is on those who contest it to prove incapacity. On the other hand, if a person has been already declared incapable of managing his affairs under section 103 of the *Lunacy Act*, then it is for him to show that he is capable, and it is not beyond the bounds of possibility that he may be able to do so, not having been found insane. Parry (1947) puts it thus:

If it is shown that the testator was generally insane, for example, had been certified as such, the person propounding the will has to prove that it was executed during a lucid interval.

Delinquency.

Delinquency is another subject which sometimes concerns the general practitioner, for he is often in a better position to sketch in the family background than the specialist. Much has been written on the subject, and there appears little to add to a previous statement (*McGeorge*, 1939) that the homes from which delinquents come seem to play a large part in producing social maladjustment. There are five types of homes to which this principally applies. These are: the slovenly home in which anti-social ideas are frequently expressed, so that the child, too, grows up with a grievance against society; the repressive home in which the child is continually heckled and abused; the indifferent home, often a wealthy one, where material things are supposed to take the place of real affection; the indulgent home from which come the spoilt children who take all and give nothing in return, and, finally, the broken home, which is probably the most fertile source of all. Mental defect also plays its part, but the percentage of cases in which it appears is not agreed upon by different observers. Some set it as high as 60%, but the figure is probably nearer 30%. Intellectual retardation of any degree always presents a problem in adjustment because of the incapacity of the individual to compete with others. They mostly form the group of unskilled workers who are frequently unemployed. Many graduate from juvenile crime to become adult recidivists. They are usually poor material for training and rehabilitation, and they represent a large proportion of the prison population. If the mental defective

commits an offence for which the sentence may be two years or more, or is found guilty of wilfully and obscenely exposing his person, he may be dealt with under the *Mental Defectives (Convicted Persons) Act* and given an indeterminate sentence.

The Sexual Offender.

The sexual offender is a perennial subject for "Pro Bono Publico" and "Mother of Ten" to write irate letters to the Press about. Some militant ladies would, like the women of Afghanistan after a battle, creep up on the offenders with their little knives and perform certain surgical feats upon them. Some psychiatrists, on the other hand, have a child-like faith in medicaments or words of wisdom in the form of psychotherapy. Between the two extremes lies a rational approach to the problem, based on experience. It must be admitted that there are many cases for which nothing can be done. This is due to the essentially constitutional nature of the condition and the complete absence of cooperation on the part of the offender who usually seeks advice only after he has been arrested. Our first concern should always be the protection of the public, particularly its youthful members; and those who prey on children, often causing untold psychological trauma in the process, deserve little mercy. Observers who have travelled abroad, and have not been blinded by their own enthusiasm, have returned discouraged by the comparative failure of overseas authorities to deal adequately with the sexual psychopath. Many grandiose claims have been made, but on investigation these have been found to be unjustified. Undoubtedly, results can be achieved in a certain proportion of cases by prolonged psychotherapy, but these cases must be carefully chosen and the subjects must evince a definite desire to help themselves to a normal outlook on sex. Best results are achieved with the active homosexual whose unprepossessing appearance often makes it a case of *faute de mieux*. The less common and comparatively harmless perversions of the sexual instinct such as fetishism and exposure, and those of defilers and voyeurs often respond to psychological investigation. The elderly man with some mild mental deterioration who finds children an attraction, largely because of their lack of resistance, is a menace and needs close supervision. The corrupter of children and the passive homosexual are the most serious problems amongst the sexual offenders. The latter do little harm, but may have a high nuisance value as offenders against public decorum and decency. For that reason they have to be strictly dealt with. It must be emphasized that there should be no hesitation in reporting offences against children, for only too often it has happened that the little victim has been silenced so that she will not betray her ravisher. There are many more worthy causes for sympathy than the sexual offender.

Conclusion.

Finally, in order to restore the harmony which existed between the medical and legal professions prior to 1843 when the McNaghten rules were laid down, it is suggested that a further test of responsibility be added to them so that they read "that he did not know the nature or quality of his act or that what he was doing was wrong or that he had hallucinations or delusions or such disorder of conduct or such impairment of intellect as to render him certifiable in the terms of the *Lunacy Act, 1898*". After all, it is respectfully submitted, insanity is a purely medical problem and one would hesitate to take even an insane person to a lawyer for treatment.

References.

- ANSON, William (1947), "Principles of English Law of Contract", 139.
 BUTLER, T. F. and GARRIA, M. (1954), "Archbold's Pleading, Evidence and Practice", 17.
 McGEORGE, J. (1939), "Juvenile Delinquency", M. J. AUSTRALIA, 2: 94.
 MORRIS, J. H. (1949), "Dicey's Conflict of Laws", 265.
 PARRY, D. H. (1947), "The Law of Succession", 10.
 STALLYBRASS, W. T. (1954), "Salmond's Law of Torts", 64.
 WILLIAMS, G. L. (1953), "Criminal Law", 374.

THE USE OF TRACTION IN BACKACHE.¹

By E. HASLETT FRAZER,
 Sydney.

BACKACHE today would appear to be an increasingly frequent complaint, and its treatment is apparently one which leaves much to be desired. Non-articular rheumatism, into which category backache very often falls, is, according to Spillane of Cardiff, one of the main causes of incapacity in industry. The much discussed but possibly not so far-fetched term "fibrositis" is also rather readily applied to backache. Probably a more liberal interpretation of this word may suit the greater number of cases of non-articular rheumatism of the soft tissues of the back. There is, however, little agreement on the definition, much less the origin, of fibrositis. At the 1953 annual meeting of the British Medical Association in Cardiff, in a plenary session on this subject, out of seven contributions reported, six put forward entirely divergent views.

In a previous article I have expressed my own concepts of the different causes of backache. These are not in order of frequency, but are those which have been encountered in practice. To recapitulate, they are as follows: (i) trauma, comprising muscular and ligamentous strain; (ii) spondylitis—osteoarthritic, ankylopoietic, tubercular; (iii) herniated intervertebral disk; (iv) uterine displacements, menstrual dysfunction and ovaritis; (v) so-called fibrositis; (vi) renal disease, and occasionally prostatic hypertrophy or inflammation; (vii) neoplasm of the cord; (viii) faulty posture; (ix) Costen's syndrome (cervical spinal region); (x) multiple myeloma (Kahler's disease); (xi) subconscious emotional tension, occasioned by frustration of environmental, domestic, or sexual origin, frequently encountered as an accompaniment of such conditions as anxiety state, *coitus interruptus*, Ménière's syndrome, latent homosexuality, "compensation back", *inseminia et cetera*.

Of these, in my opinion, by far the most frequently encountered conditions are those involving physical and/or emotional trauma. It is, of course, to be appreciated that emotional disturbance may in time lead to severe pain and actual organic changes, so that unless the underlying psychic tension is disclosed and resolved as far as possible, not a great deal of progress will be made. In this connexion it is interesting to read in Ghormley's (1953) report on orthopaedic surgery from the Mayo Clinic, that the number of patients with backache and sciatic pain who have been operated upon twice or more with still recurring symptoms, is an increasingly difficult problem. In a conversation with Donald Covalt of the New York University Rehabilitation Institute, the latter expressed the opinion that the psychological is probably the principal factor in backache. Whether one agrees or not, it is evident that it plays no inconsiderable part, and I have for a long time now roughly termed that type of incapacity a "tension backache".

Now, emotional tension conveyed to muscles and ligaments through the autonomic nervous system is manifested as literal physical organic tension of muscles and ligaments. A very simple condition known to most of us is the pre-examination frequency of micturition, or the diarrhoea due to fright; the apparent inhibition of muscular activity in extreme fear is also an example. "Rigid with fear" is a well known phrase in literature.

It is not difficult to envision that this mental tension produces muscular tension, by causing nervous irritation, contraction of blood supply, diminished oxidation and metabolism, and a spasm varying in degree. The same situation probably occurs in ligaments. According to Mennell, the nerve supply of joints and ligaments is derived from the sympathetic nervous system. If this is so, the linkage between the spine and the psychological unconscious is all the more substantiated.

¹ Read at the annual meeting of the Australasian Association of Physical Medicine, March 30, 1954, at Melbourne.

In the case of physical trauma, gross tears or lesions of muscles and ligaments with or without vertebral fractures or subluxations being omitted, it is difficult to demonstrate minor and possibly microscopic changes in the soft tissues. It would seem only reasonable to deduce that brief and abrupt, or consistent and long-duration strains, must afflict these organs with changes similar to those just mentioned. All these factors, in my opinion, may lead eventually to the development of arthritis. The work of Bayer of Freiburg seems to confirm this. Bayer and his colleague, Professor F. J. Lang, carried out a series of experiments on guinea-pigs, which were fitted with special collars and trousers made of soft leather. A series of small springs were incorporated in the dorsal part of the spinal and abdominal

the arm-pits, hoisted over the limb of a tree by a rope affixed to the ladder, and suddenly dropped five or six feet. As a more gentle alternative the subject was laid face downwards on a board, fastened around the chest to a post near his head, whilst his thighs were roped together and the rope passed around a winch or capstan. Sometimes, in addition, a man stood upon his back. As these measures were adopted for spinal kyphosis or lordosis, it is not surprising that the results were usually without success and sometimes disastrous.

In more modern times less rigorous methods of controlled spinal traction have been evolved. Cervical spinal traction was achieved by the use of Sayre's head sling, and various devices were employed to secure some traction of the

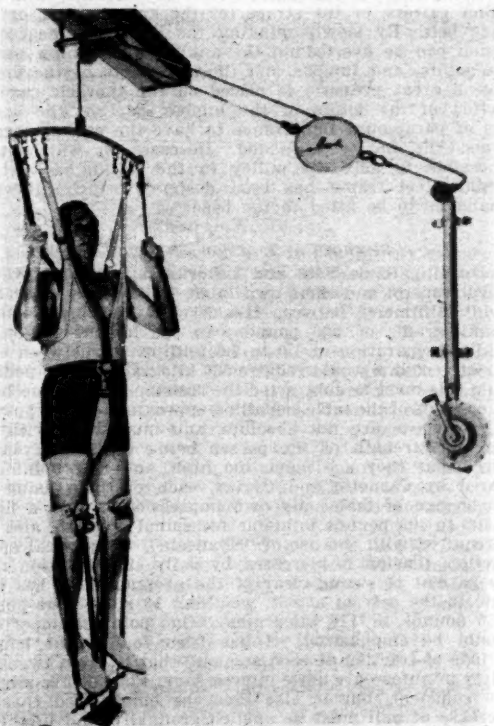


FIGURE I.
Traction: hips.

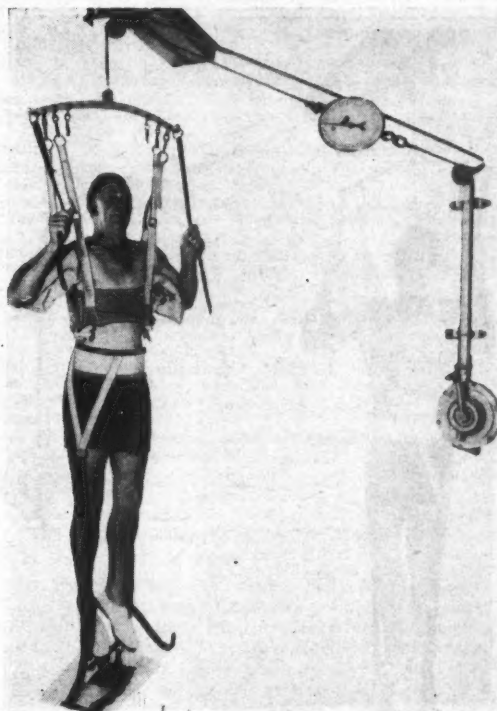


FIGURE II.
Traction: lumbar and dorsal vertebrae, 400 pounds.

region, which were arranged so as to "jolt" the animals' spines daily for a period of five months. At the end of this period, histological examination of the control animals showed no changes in the vertebral articulations or in the cartilages. The examination of the experimental guinea-pigs disclosed locally limited vascularization of the cartilages, especially at the edges of the joints, changing of the cells into multiple nuclei chondrocytes, and reactions of the subchondral bone characteristic of the beginning of *arthritis deformans*.

Traction.

Once one has an idea regarding the genesis of pain in the back, it is necessary to use every method to counteract, alleviate and cure the condition. To this end spinal traction has been found most valuable.

Spinal traction is not new. It was employed in Europe in ancient days from Hippocrates onwards, in a rather vigorous and primitive manner. The recipient of this attention was strapped to a short ladder, made fast under

vertebrae generally with the object of applying a plaster jacket to the patient.

In 1934, Caruette and Eerray of Aix-les-Bains, who are probably the pioneers of controlled spinal traction, developed a table which has been modified many times since.

In 1944 Keegan applied a method, used also by d'Abt in America, of kinesitherapy with the patient lying on his back on a table, his head in a sling, whilst traction and movement were applied by the operator pulling on his legs.

In 1946, Levernieux, Stanislas and Paul de Séze and de Sambucy in Paris developed a vertebral traction motor-driven table of a most elaborate design and capable of giving very considerable traction. Other work had been done by Kahlmeter in Sweden, by Michotte in Belgium, and by Murgard in Switzerland. Since 1934, my own idea has been to envisage a vertical traction appliance which would have the advantage of economy, convenience, the utilization of the patient's body weight and the psychological effects of suspension. In addition, this apparatus will stretch almost every joint from neck to ankle.

The Physiopathology of Traction.

De Séze and Levernieux, who are the most prolific writers on this subject, originally experimented on the cadaver, injecting the intervertebral disks with radio-opaque fluid, and following this by radiographic examination, prior and subsequent to traction. They maintain that in the living subject traction on the vertebrae causes a lengthening of the posterior spinal and other ligaments, a vertical widening of the intervertebral space and, in the case of a ruptured *annulus fibrosus*, a widening of the fissure, with the creation of an empty space into which there is a tendency for the *nucleus pulposus* to be drawn. These results, they claim, have been checked by radiographic examination of those subjects which have been injected with "Lipiodol" into the canal. I myself, in 1949, confirmed

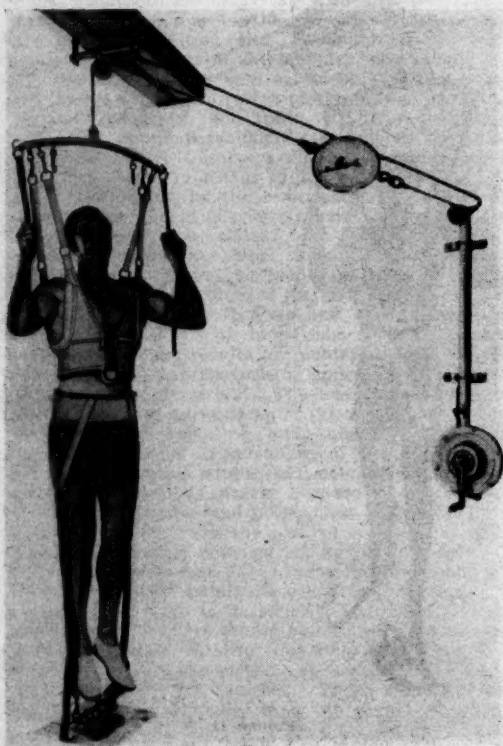


FIGURE III.

Traction: lower lumbar vertebrae and sacro-iliac joints.

the stretching of the ligaments, and by radiological control the widening of the intervertebral spaces. Radiological confirmation of the widening of the intervertebral spaces has been carried out by Faidherbe, of Aix-les-Bains.

Practical Application.

In the process of spinal traction it is necessary to overcome two resistances—ligamentary and muscular. If one uses a table, a third resistance has to be counteracted—that of the body against the table. These resistances have been roughly estimated, varying with the weight and musculature of the patient, as naturally one would not apply as much force to a woman weighing 112 pounds as, say, to a man weighing 160 pounds.

In my own vertical traction apparatus, which I believe is the only one in existence, advantage is taken of the patient's weight, and to encourage nervous and muscular

relaxation, sedatives such as bromides are prescribed as a routine, whilst half an ounce of mephenesin ("Myanesin"—British Drug Houses) is given ten minutes before traction. In this connexion, the daily administration of "Bellergal" (Sandoz) and the intravenous injection of 20% calcium solution have been employed for many years. All patients are radiologically examined prior to any traction or manipulation. The mechanism of the appliance is simple. A self-locking hoist is affixed to the wall. From this an aircraft wire capable of bearing a heavy load (up to four and a half tons actually) traverses a ball-bearing pulley affixed to the ceiling. In this length of wire is incorporated a 400-pound spring balance. From this wire is suspended a steel cross bar fitted with four rings. To these, the appropriate corsets can be attached quickly by strong snap-hooks. A steel cross bar carrying four rings is also firmly screwed to the floor. To these are attached leather gaiters, or the straps for the knee gaiters, or the pelvic belt. By slowly winding the hoist any degree of tension can be exerted on the ankles, knees, hips, sacro-iliac joints, and lumbar and thoracic parts of the spine. Since a great pressure is placed on the thoracic cage in traction of the joints of the lumbar part of the spine, it is of paramount importance to have the canvas corsets of good fit and well padded. In cases in which it is impossible to affix the pulley to the ceiling, a vertical tubular steel frame has been designed which allows a dynamometer to be fitted to the base.

Strength of Traction Employed.

According to de Séze and Levernieux, who used radiological control and their own table, to obtain a separation of 1.0 millimetre between the cervical vertebrae requires 118 kilograms or 260 pounds; in the lumbar region, to obtain a separation of 1.0 to 2.0 millimetres between each pair of vertebrae would require 350 kilograms or 770 pounds. From this must be subtracted the resistance of the mechanical chariots of the table, equalling approximately 320 pounds. These figures are not absolute, and must vary with the size and strength of the person being treated. Even so, I feel that they are much too high, and this opinion is shared by Caruette and Cyriax, each of them using his own design of table. My own impression is that a figure of 300 to 400 pounds is ample for spinal traction, and less is required with the use of "Myanesin". In cervical spinal traction, tension is increased by daily augmentation until the patient is swung clear of the ground. This has been done in the case of a man weighing 18 stone four pounds (256 pounds, or 116 kilograms). One point of importance should be emphasized; it has been found that lengthy periods of traction at each session—that is, from twenty to thirty minutes—are quite unnecessary. Four or five minutes are sufficient, but it also must be emphasized that the increase of pull must be applied gradually, and further, it has never been found necessary to put a patient in a plaster jacket or to use a spinal brace.

Therapeutic Value.

In my own practice, in this type of work extending over twenty-five years, the cases that have been encountered are principally those of chronic backache, sciatica, spinal arthritis, disk lesions (mostly chronic), cervico-brachial "neuritis". Most of these patients have had lengthy periods of treatment without much response; consequently, in contrast to those with more acute conditions which present few problems, the chronic sufferer presents generally a psychological as well as a physical problem. A very comprehensive and intensive treatment is thus necessary, and in this traction plays an exceedingly important part. It is not an exaggeration to say that 80% to 90% of these chronically affected patients proceed to recovery. There is, of course, always the person who, for purely psychological reasons, refuses to part with his or her disability, no matter what treatment is given. These are those who very truly may be said to "enjoy ill health". For those who believe that most backaches, neuralgias, sciaticas *et cetera* are caused by varying degrees of discal protrusion, the figures of "good results" shown in Table I may be of interest.

In cervical and cervico-brachial neuralgias the average of successful results is 78%.

In England, Cyriax states that the use of traction since 1950 has reduced the incidence of laminectomy in his cases from one in 40 to one in 200. In America, where the value of traction is but little appreciated, Neuwirth, Hilde and Campbell, using a modification of Caruette's table, reported that out of 13 patients suffering from sciatica, eight were cured and three showed improvement.

TABLE I.
Lumbar Pain: Good Results Achieved by Traction.

Authority.	Good Results.
Caruette, Aix-les-Bains	70%
Robecch, Turin	57%
Ravault, Lyon	74%
Allies, Marseille	65%
Serre, Montpellier	78%
De Séze and Levernieux, Paris	75%
Average	69.8%

Contraindications.

In 25,000 tractions reported in Europe, only six untoward sequelae resulted. Dislocation of one apophyseal articulation, cardio-vascular reaction in mitral disease, a paresis of the leg following the disappearance of sciatica, and three cases of hyperalgie reactions are quoted. In my own practice, since every patient without exception is fully examined physically and also radiologically before treatment, I have not encountered any complications; but I should be careful in recommending traction in cases of active peptic ulcer, unduly high blood pressure, hernia, cardiac disturbances and gross hæmorrhoids. When all is considered, every known animal, human or otherwise, indulges in stretching its muscles. The tendency in all living creatures is for the elasticity, idealistic and physical, of youth gradually to concede to the congealing acquiescence of the aging forties. There are few people, healthy or otherwise, who do not benefit from the stimulating effects of traction, and there is no doubt that, whatever the reason may be, traction, like exercise, tends to rejuvenate the human frame.

Summary.

1. A list of some of the commoner causes of backache is given.
2. In disorders of the back the factor of emotional disturbance—the psychosomatic element—is briefly discussed.
3. A description of the author's method of vertical traction is included with a résumé of the results obtained by traction in Europe.
4. Some probable contraindications are mentioned.

Acknowledgements.

I should like to express my appreciation of the valuable help given to me, in the way of personal demonstrations and suggestions regarding traction, by Dr. R. Caruette (Aix-les-Bains), Dr. James Cyriax (London), Dr. Frank Krusen (Mayo Clinic, Rochester), Dr. J. Levernieux (Paris), and Dr. José Poal (Barcelona). My thanks are also due to Mr. Kenneth C. McLeod, of Sydney, for his unremitting interest and for his advice on the mechanical problems associated with this apparatus.

References.

- BAYER, H. (1951), Chief of Surgical Clinic, Freiburg University, European Congress of Rheumatology, Barcelona, Reports, page 409.
- CARUETTE, R. (1951, 1953), personal interviews and communications, Aix-les-Bains.
- COSTEN, J. B. (1936), "Neuralgias and Ear Symptoms Associated with Disturbed Function of Temporomandibular Joint", *J.A.M.A.*, 107: 252.
- COVALT, D. (1951), Clinical Director New York University Institute of Physical Medicine and Rehabilitation, personal conversation.
- CYRIAX, J. (1952), "The Treatment of Lumbar Disc Lesions", *Lo Stetoscopio*, 3: 238.
- CYRIAX, J. (1953), "Disc Lesions", London, 30.
- DEUTSCH, F. (1939), "The Choice of Organ in Organ-neurosis", *Internat. J. Psycho-Analysis*, 20: 252.
- FAIDHERBE, P. (1951), *Clinique chirurgicale*, Aix-les-Bains, personal interviews.
- FRAZER, E. HASLETT (1951), "Psycho-physical Approach to the Problem of Backache", European Congress of Rheumatology, Barcelona, Reports, page 350.
- FRAZER, E. HASLETT (1951), "Some Psycho-Physical Aspects of Backache", *M. J. AUSTRALIA*, 1: 765.
- FREUD, S. (1922), "Beyond the Pleasure Principle", International Psycho-analytic Press, London.
- GHORMLEY, R. K. (1953), Annual Report, Section Orthopedic Surgery, *Proc. Staff Meet., Mayo Clinic*, 28: 252.
- KRAUS, H. (1952), "Diagnosis and Treatment of Low Back Pain", *GP*, 5: 55.
- KRUSEN, F. (1951, 1953, 1954), Mayo Clinic, Rochester, United States of America, personal interview and communications.
- LEVERNIEUX, J. (1951), "La traction vertébrale sur table mécanique", European Congress of Rheumatology, Barcelona, Reports, page 676.
- LEVERNIEUX, J. (1952, 1953), personal communications.
- MENNELL, J. B. (1949), "Science and Art of Joint Manipulation", Churchill, London, 1: 22.
- NEUWIRTH, E. (1954), "Management of Sciatica by Vertebral Traction by Means of Mechanical Table", *Rheumatism*, 10: 12.
- NEUWIRTH, E., HILDE, W., and CAMPBELL, R. (1953), "Tables for Vertebral Elongation in the Treatment of Sciatica", *Arch. Phys. Med.*, 33: 455.
- DE SÈZE, S., and LEVERNIEUX, J. (1951), "Les tractions vertébrales; premières études expérimentales et résultats thérapeutiques d'après une expérience de quatre années", *Semaine hôp. Paris*, 27: 2085.
- DE SÈZE, S., and LEVERNIEUX, J. (1952), "Physio-pathologie de la traction", *Bull. et mém. Soc. méd. hôp. Paris*, 28: 1089.
- SPILLANE, J. P. (1953), "Psychiatric Aspects of Fibrositis", *Brit. M. J.*, 2: 205.
- STONE, L. (1938), "Psycho-genesis of Somatic Disease", *Internat. J. Psycho-Analysis*, 50.

THE MANAGEMENT OF LOW BACK PAIN.¹

By FRANK MAY, B.Sc., M.B., B.S., D.M.R. & E.,
Consultant in Physical Medicine to Saint Vincent's
Hospital and Prince Henry's Hospital, Melbourne,
and to the Repatriation General Hospital, Heidelberg,
Melbourne.

In the practice of physical medicine so many patients are seen suffering from low back pain that the condition warrants some consideration. To achieve the best results attention to a detailed history and examination is essential.

From the patients' viewpoint low back pain is often disconcerting to their physical and mental well-being. It can be with them so constantly as to interfere with sleep, with ambulation, with work, and even with their appetites—this last often because of the amount of "dope" taken. Some patients worry because of the fear of being crippled or bedridden with arthritis; others worry because they cannot carry on with their work, and their wives and children cannot exist nowadays on compensation or social service payments alone. Perhaps they are building homes or have something on time payment. On the other hand, some find a backache a useful and a not very serious complaint to further some ulterior motive.

The first visit is the most important. If the door of your room is open, you may see the gait and posture of the patient as he walks in. The history taken must be thorough. Where exactly is the pain? Where does it start? Does it radiate anywhere? Is the pain constant day and night? Is it relieved by bed-rest? Is turning in bed painful? Is the pain more or less severe on rising? If it is worse on rising, does it decrease as the patient

¹Read at the annual meeting of the Australian Association of Physical Medicine, March 29 to 31, 1954, at Melbourne.

"warms up", or does it steadily worsen as the day goes on? Is the pain central or on one side more than on the other? (As a student, I well remember one of our great teachers, the late Sir Richard Stawell, giving us a lecture, the main subject of which was: "What was the mode of onset?" In all medical history-taking elaboration of this is important, and the mode of onset of a back pain often gives useful information. Because a backache is due to trauma or to something that has been stretched, pulled or strained, it does not necessarily follow that the mode of onset was sudden.) To continue: How long has this attack been present? Has it been worse than at the moment of examination? What was the patient actually doing at the time when his pain commenced?

Apart from age *et cetera*, an interrogation into the past history is important. The patient should be asked whether he has had attacks of this nature before and how often, what was their causation as far as known by himself or his doctor, how long each attack lasted, how he obtained relief in previous attacks, whether he has any other pains, and what previous illnesses and what operations he has had.

Then follows the usual interrogation with regard to appetite, digestive habits, bowel routine, micturition, sore throats, coughs and, finally, loss or gain in weight. The female patient should be questioned about menses and intermenstrual discharge.

The examination must be thorough and, of greatest importance, it must be made with the patient wearing a pair of briefs only. At first, with the patient in the standing position, note the following: (i) the condition of teeth and tonsils; (ii) the posture and the type of back—the long, the thin, or the short, stocky build; (iii) mobility—lateral bending, extension and flexion, and rotation.

Observe whether spinal flexion is limited and, if so, whether there is rotation as well. Rotation may be due to some unilateral condition causing pain. The rigid back suggests propulsion of an intervertebral disk, with great pain and muscle spasm. Great rigidity is usual in *spondylitis ankylosa*. It also occurs in acute fibrositis and in acute back strain, and by that I mean strain of apophyseal joints or of the soft tissues of the back.

Secondly, with the patient now lying supine, try to elicit Lasègue's sign, and examine the reflexes, sensation, hip movements and spinal movements, and test manipulative movements, examine the abdomen and make a vaginal or rectal examination if necessary. While the patient is lying prone, note the degree and position of local tenderness. The usual site is in the sacro-iliac sulcus—that depression filled with the lower *erector spinae* muscles between the posterior superior iliac spine and the spinous process of the fifth lumbar vertebra. There may be tenderness over the line of the sacro-iliac joint itself or in the gluteal group. Local tenderness of the supraspinal ligament or over the spinous processes is not uncommon, is very difficult to treat, and in some cases probably represents the only cause for backache.

During this examination two things may be done: (i) go through a gentle manipulation—rotation only—and see whether it alters signs of spinal flexion and Lasègue's sign; (ii) inject "Novocain" into tender areas, again test spinal flexion and attempt to elicit Lasègue's sign and see what pain occurs with these tests.

At this stage one usually has a fair idea of the diagnosis, and so further investigations are ordered. An X-ray examination of the lumbosacral part of the spine comes first. I usually like two antero-posterior and two lateral films. Oblique films are not so valuable as in the cervical portion of the spine. An X-ray examination should be made for any focal infection if it is suspected from the history and examination—for example, cholecystography or a full dental survey for apical or paradental sepsis. The edentulous areas must be included, as frequently retained roots are present. Blood examinations are usually not necessary, but sometimes an estimation of the blood uric acid content, the erythrocyte sedimentation rate and

the haemoglobin value should be made. Finally, if one suspects that the condition is a "toxic back" one should make a vaginal examination to see whether any cervical erosion or cervicitis is present, or examine under the microscope a prostatic smear.

Once I was asked to examine a male patient suffering from low backache. He happened to be an old friend whom I had not seen for years. During the interim we chatted about our families and early boyhood days. Imagine my horror when, on making a rectal examination, I found a malignant growth.

This emphasizes the remarks of one of our teachers that "no examination is complete without a P.R."

If one suspects psychosomatic pain, further time can be spent then, or subsequently, with some psychological investigation.

All this interrogation and examination sounds as if it would take a long time; but much just becomes routine procedure, and diagnosis is usually complete on the second visit, when the reports are back.

The differential diagnosis has now to be considered, and with it I will indicate treatment.

Scoliosis and postural faults are often the cause of low back pain. Scoliosis is often painful if uncompensated, and at the end of a long day, especially if no supporting corsets are worn. The pain is usually higher and at the apex of the lumbar curve. Probably here is the greatest strain on muscles, ligaments and the apophyseal joints. Treatment is usually given by the application of some soothing heat, exercises and postural training, with sometimes support, and occasionally manipulations to give more mobility. A minor inequality of the legs is sufficient to produce low back pain and can be relieved by equalizing their lengths.

Spondylolisthesis may be seen in the X-ray film and not suspected during the clinical examination. If it causes pain, this is often central low back in position or may be sciatic in type. Treatment consists of exercises, particularly abdominal exercises to give support to the back, with corsets or a brace, or perhaps operation. In both these conditions exercises are necessary to gain compensation in the scoliosis and to give extra abdominal support for the spondylolisthesis. Corsets may be suggested in some cases, especially for the housewife, who spends long hours on her feet.

Pelvic tilt with "sway back" is often a cause of backache due to postural faults. Reeducation and exercises soon relieve the pain. Adolescent kyphosis, with the usual compensatory lumbar lordosis, is another condition causing low back pain. Reverse spondylolisthesis does occur with disk degeneration, but which is the major factor in the production of pain is uncertain.

Developmental abnormalities, such as unilateral sacralization of the fifth lumbar vertebra, or lumbarization of the first piece of the sacrum, with or without false joint formation, may be seen on X-ray examination; but these are not common causes of backache *per se*, though this type of back is most likely to be strained by injury. If the last-mentioned condition is present a period of rest from strain with some soothing short-wave therapy and massage should be given, but no exercises at first, and probably not at all. Support with corsets may be the answer, and probably to stop sport.

Fibrositis does occur, in spite of the statements of those who maintain that it does not exist. One notes in the literature that there are others who believe that it is an entity (Martin, 1952; Neufeld, 1952; Copeman and Ackerman, 1944; Bach, 1947; Tegner, 1946; Caven, 1947). The nature of fibrositis is not always clear. I am sure that some cases have an element of local inflammation and others a reflex phenomenon with protective muscle spasm. J. H. Young summarily dismisses fibrositis among other clinical entities causing backache (Young, 1952).

The type of low back pain associated with acute infections such as influenza, or occurring after a thorough chilling or some unusual exercise—experiences that most or all of us have had—must be due to toxic irritation in

the tissues causing local tenderness and muscle spasm. Another theory is that there is a localized oedema of the tissues. In support of this is the relief produced by such remedies as the injection of hypertonic saline or anodal galvanism. The same occurs as one of the aspects of true gout, may be associated with a gouty joint and responds just as quickly to such remedies as colchicine and "Butazolidin".

Toxic backache may be the result of more chronic intoxication. Dental sepsis is the most certain and positive cause. The presence of inflamed gums which ooze pus or blood on pressure, the depth of pockets (assessed with a probe) and X-ray examination confirm this diagnosis. The presence of an erosion of the *cervix uteri* or cervicitis, or of adnexitis can be investigated. If any of these are present, my methods are to give intrapelvic diathermy, ionization and fulguration, usually in that order. Low backache is common in cervical erosion, and treatment is most satisfactory. Jean Ross and T. W. Burgess report similar satisfactory results (Ross, 1950; Burgess, 1950). The presence of 50 pus cells per high-power field in a prostatic smear indicates prostatitis. A weekly prostatic massage is all that is necessary in most cases.

Acute fibrositis responds satisfactorily to heat, rest, massage and pain relievers, of which there are so many. "Butazolidin" appears to be helpful frequently. If it is metabolic in origin, a good sweat is always of value, and a weight reduction alkaline-ash diet, with or without thyroid, is always necessary for the obese patient.

In the subacute and mildly chronic cases "Novocain" injection cuts short much of the attack. This must be repeated, for it is difficult to relieve the local tenderness with one injection unless it is very localized. In any case, if the pain recurs after the effect of the "Novocain" has worn off, that is no reason to say that this procedure is of no use. I never use stronger than 0.5% solution, and find it effective and never toxic.

In the more chronic cases sometimes relief is given by a good stretch by manipulation of the muscles and ligaments which have undergone a stiffening process. This should be followed by regular exercises to strengthen the back and maintain mobility. Wherever there is inflammatory exudate, whether it is traumatic, toxic or infective, there will soon be a cellular reaction, followed by a fibroblastic invasion, and so the development of adhesions. A joint may become locked, and an interference with the normal range of joint play interferes with the normal range of voluntary movement. A joint may be strained and become painful, then muscle spasm occurs, followed by fatigue and strain, and finally adhesions form and lock the joint. Either gives an explanation for some of the obscure pains so often encountered and so dramatically relieved by "Novocain" injection and/or manipulation.

If muscular or ligamentous strain is the diagnosis, the treatment as outlined above is usually effective. This type should be regarded as traumatic fibrositis, a category into which fall so many industrial backaches. Another example is the backache that follows the first game of football or cricket, muscles being used which have not been exercised in such a fashion for six months.

The next type of case is that in which a diagnosis of strains of joints is involved. Firstly, is it possible for sacro-iliac subluxation to occur? Young states that it cannot occur alone. I have seen patients with a sudden stab of pain localized to one or other sacro-iliac joint, and pain referred down the posterior aspect of the thigh. They are comfortable at rest, but any movement is painful. With manipulation a snap and immediate relief occur. If the patient is examined and treated within a few hours of onset, the relief may be almost complete; but if manipulation is delayed for a few days, although improvement may occur, the condition may take some days to recover. This is because of the reaction that has occurred in and around the injured joint with accompanying protective muscle spasm. With the injection of "Novocain" into the surrounding muscles, the application of heat, massage and graduated exercises soon produce a happy result.

That subluxation also occurs in the apophyseal joints is very likely, and these perhaps behave with manipulation in much the same way. Otherwise it is hard to explain some of the dramatic cures produced by manipulation (Barbour, 1953).

A common acute lesion of the back is that of strain of the apophyseal joints. This may occur just as a mild twinge at first, but in a few hours there is reactionary swelling with pain and great muscle spasm. There are no signs of nerve root pressure and little radiation of pain. Complete rest with the use of sedatives and heat soon gives relief. Any local tenderness is usually due to protective muscle spasm and is fairly widespread, so "Novocain" injection is of only temporary and slight help. Exercises are not given till later, and they then must be carefully graded from static muscle contractions onwards.

This recurrent pain in the back is often prevented by support with surgical corsets and investigation of the exciting cause.

Possibly the most common cause of backache is intervertebral joint strain with nucleus or disk propulsion. This again often produces an acute stab of pain in the back, which may be centrally or laterally placed. It is difficult, if not impossible, to distinguish this from the apophyseal joint strain, except that the latter is nearly always laterally placed and there are no signs of nerve root irritation.

With disk displacement, at first the pain may not be too severe, for the protrusion may not be large enough to cause pressure on any nerves. The patient may carry on, but within a few days swelling occurs with repeated irritations until nerve root pressure occurs. The picture is of sciatic pain with hypoaesthesia, "pins and needles", scoliosis, inability to stoop much and a hold-up of the back on one side; spinal flexion, Lasègue's sign and, finally, wasting and weakness of muscle and loss of the ankle jerk complete the picture. An X-ray examination at this stage may not be helpful. If diagnosis is uncertain but essential, the use of special X-ray procedures with the use of "Myedil" will help. The size and position of the protruded disk may be outlined clearly. Another help is taking X-ray films with flexion to see whether there is any paradoxical disk pattern. The Copenhagen workers (Hasner, Schallimtzek and Snorrason) state that they have achieved a high percentage of positive diagnoses of intervertebral disk lesions.

All these signs may not be present at the same time (Hepburn, 1953). The evaluation of signs and symptoms is difficult. "Novocain" is helpful (Murray, 1953). There is often difficulty in distinguishing the apophyseal strain and the ruptured disk in the early stages. In either case, complete rest is essential, and that may require at least a week. Once sciatica has developed, the rest in bed may be for three or more weeks. This rest must be absolute. Such things as getting up for meals, showers and micturition are contraindicated. Sitting in bed reading and sitting in a bath should be forbidden. Raising the foot or head of the bed with traction is of problematical benefit, for most patients get well if one is strict enough about rest.

At this stage manipulation is unwise and of little value, and if attempted it must be without an anaesthetic and with no spinal flexion—just rotary movement. J. H. Weir (1951) described a method of manipulation which he had used on himself. In a few cases I think it was helpful. The method is to reproduce the lumbar lordosis with relaxation in the supine position, maintain it with the hands, and then perform leg-raising exercises *et cetera*. Just recently I noted a method of manipulation as described by William Heron, of Callan, County Kilkenny, in a letter to the *British Medical Journal* (Heron, 1954). Heron states that he has not failed in the few cases in which it has been tried. It has been helpful so far to a few patients under my care, and adds yet another conservative procedure in dealing with the displaced disk causing low back pain. In my own practice I have found manipulative methods invaluable in all sorts of conditions, and I am quite sure that a closer study of manipulative procedures would be of great help.

The next stage is to get the patient up. Muscle-setting exercises for back and abdomen, and other exercises for limbs are started, and a brace is ordered. This is worn for three months. For women, the next best is the surgical corset. Support from elastic "step-ins" is not sufficient. No exercises of spinal flexion are given until one feels that the patient is progressing satisfactorily. Flexion generally looks after itself. Any associated muscle spasm and local tenderness may be helped by heat, massage and "Novocain" injection. Later, if sciatic pain persists to only a minor degree, it may be that a final cure will not be obtained until manipulation is performed. Physiotherapy plays little part in the early stages, and deep X-ray therapy has nothing to recommend it that rest cannot do. Conservative measures play a big part in the management of lumbar disk protrusion (Henderson, 1952).

The management of the protruded intervertebral disk has been the subject of many articles, and the proper use of bed rest with even plaster boards, jackets, braces *et cetera* has been well covered by E. J. Crisp (1952).

With epidural injection I have not had much success, and traction is often uncertain; but sustained traction, as described by Crisp, should be more effective. The final rehabilitation of the patient also has to be considered, whether treatment is conservative or surgical. That operation on the protruded intervertebral disk is performed frequently there is no doubt, as some figures quoted illustrate (Murray, 1953). The figures speak for themselves, and results are often asked for by the patient. If conservative treatment fails, the surgeon can offer a high percentage of cure or relief. Every now and then one encounters a case in which the condition will not settle down no matter what conservative treatment is given, and for quick relief operation is the answer. Before the pathology of disk displacement was known, many, if not all, of these patients more or less recovered from their sciatica by a process of degeneration which caused a shrinking of the disk contents.

Often we see a patient with a long history of attacks of back pain and with one or more incidents of sciatica. The attacks of low back pain may be mild or very acute. An X-ray examination reveals a narrow disk, most commonly at the lumbo-sacral joint. We presume that the sequence of events has been that the annulus has been injured previously, the nucleus being allowed to protrude, with pressure on the nerve (sciatic episode). The attack subsides and the material making up the intervertebral space becomes dissolved or removed, so that the bony surfaces are allowed to come together. With time there occur sclerosis, with or without lipping, and osteophyte formation, as seen on X-ray examination. The mechanics are altered, and the apophyseal joints are now in different relative positions and become also the seat of a degenerative process, the osteoarthritic changes seen in a skiagram. This whole area is now liable to strain, and acute back pain may result, but not necessarily with nerve root pressure. To stop these acute back strains in patients with a degenerated disk, a jacket, brace or corset may be effective. The ultimate cure is fixation, and this may be done by Nature with a sclerosing process, or surgically by the orthopedic surgeon with a special grafting operation.

Arthritis—osteoarthritis—is so often given as a diagnosis that more trouble is caused by the name than by the disease. After a radiological diagnosis of arthritis has been given to the patient it is difficult to convince him that he is not in danger of being a cripple. He knows that the X-ray film shows all and so much more than we can feel or see. In fact, often the radiological changes of lipping or sclerosis are shown to the patient, and this is most impressive. There are many people walking about and doing a good job of work who show gross radiological changes of osteoarthritis—and fortunately they do not know it.

However, osteoarthritis, osteophytosis and osteoarthritis indicate that degenerative wearing-out processes are going on, and affected people are more stiff in the lower part of the back, their muscles and ligaments are less elastic,

and so are more liable to chills, strains *et cetera*. Treatment is again with physiotherapy, but exercises must be carefully considered. Sometimes a good rest in a brace or corset will do good when a more active routine would aggravate the condition. If the changes are fairly gross, it is better to be conservative. Manipulation may be tried, provided no further damage is likely. Here again I stress the necessity of manipulation without an anaesthetic. Several patients I can remember with the most gross degenerative changes in the lumbar part of the spine have made a dramatic recovery with manipulation after all other methods had failed.

Senile osteoporosis is another condition causing considerable low back pain. Apart from physiotherapy, the administration of calcium gluconate and vitamin D is recommended. Another uncommon condition is localized Paget's disease of the vertebrae, which sometimes causes pain. Treatment by physical means gives some hope of relief of pain.

Rheumatoid arthritis does not affect the spine as frequently as it does the smaller and more distal joints. It is treated in the usual way.

Spondylitis ankylosa is a type on its own. The disease is much more common in males than in females; but do not forget that, like gout, it does occur in females. One should suspect the disease in the young active adult or the late teen-age boy indulging in a lot of sport. Even if changes are not seen in the X-ray films, watch these patients clinically and radiologically for years. At the slightest fuzziness of the sacro-iliac joints give deep X-ray therapy and stop activity causing stress and strain. As the disease advances, rigidity of the lumbar part of the spine will be noticed, ossification of the ligaments in the lumbar part of the spine, and thoracic cage rigidity with neck and trunk stiffness (Mowbray, 1949). Do not at any stage withhold X-ray therapy to the maximum number of doses.

Fractures of the lumbar bodies are not unknown, and even if a not very severe trauma has been sustained, never fail to carry out an X-ray examination.

Secondary malignant deposits may not show in an X-ray film until later; but beware of bilateral sciatica or any backache that is fairly constant, irrespective of rest and position, or a backache that fails to respond to a course of treatment. Deep X-ray therapy will prolong life sometimes in secondary carcinomatosis.

Of *osteitis condensans ilii* I can only say that the patients treated all recovered with physiotherapy and "Novocain" injections. Whether the condition is a clinical or just a radiological entity I cannot say.

I have left psychogenic backache until last because, in my experience, it is the least common. I admit that others with a psychological outlook may believe it is common, and I also admit the psychological aspect of the "compensation back" and the backache that occurs in war-time. In a country like Australia, where wages are high, jobs are plentiful and living conditions are good, a backache should not be a handicap to the earning of good money.

Conclusion.

The management of low back pain requires, first and foremost, an accurate diagnosis, a positive diagnosis, which can be arrived at only after a thorough clinical examination. Some experiences and methods of treatment are discussed.

References.

- BACH, F. (1947), "Non-articular Rheumatism: 'Fibrositis'", *Brit. J. Phys. Med.*, 10: 132.
- BARBOUR, R. (1953), "Manipulation—Accurate Manual Methods in General Practice", *Brit. M. J.*, 2: 18.
- BURGESS, T. W. (1950), "The Treatment of Chronic Female Pelvic Sepsis by Short-wave Diathermy: A Review of Fifty Patients", *M. J. AUSTRALIA*, 2: 235.
- CAVEN, W. R. (1947), "Backache and Fibrositis", *Canad. M. A. J.*, 57: 37.
- COPEMAN, W. F. C., and ACKEFMAN, W. L. (1944), "Fibrositis of the Back", *Quart. J. Med.*, 13: 37.

- CRISP, E. J. (1952), "Conservative Treatment of the Lumbar Disc Syndrome", *Proc. Roy. Soc. Med.*, 45: 541.
- HASNER, E., SCHALIMTZKE, M., and SNORRESON, E. (1952), "Roentgenological Examination of the Function of the Lumbar Spine", *Acta radiol.*, 37: 141.
- HENDERSON, R. S. (1952), "The Treatment of Lumbar Intervertebral Disc Protrusion", *Brit. M. J.*, 2: 597.
- HEPBURN, H. H. (1953), "Herniated Intervertebral Disc with Secondary Syndrome", *Canad. M. A. J.*, 69: 55.
- HERON, W. (1954), *Brit. M. J.*, 1: 97.
- MARTIN, A. J. (1952), "The Nature and Treatment of Fibrositis", *Arch. Phys. Med.*, July: 409.
- MOWBRAY, R., LATNER, A., and MIDDLEMISS, J. H. (1949), "Ankylosing Spondylitis", *Quart. J. Med.*, 18: 187.
- MURRAY, A. R. (1953), "The Lumbar Intervertebral Disk Lesion", *M. J. AUSTRALIA*, 2: 884.
- NEUFELD, I. (1952), "Pathogenetic Concepts of Fibrositis", *Arch. Phys. Med.*, June: 363.
- ROSS, J. R. W. (1950), "Observation on Symptomatology and Treatment of Cervical Erosion", *Brit. M. J.*, 2: 647.
- TEGNER, W. (1946), "Fibrositis", *Practitioner*, 157: 446.
- WHEE, J. H. (1951), *Brit. M. J.*, 1: 1019.
- YOUNG, J. H. (1952), "Backache in Rheumatic Practice", *M. J. AUSTRALIA*, 2: 374.

SOME ASPECTS OF PAIN IN CHRONIC RHEUMATIC DISEASE.¹

By J. F. DREW,
Adelaide.

If I described pain as the dominant complaint of all rheumatic sufferers, the universality of this most important symptom would be appreciated; but for the purpose of this paper the coldly analytical definition of Wolff and Wolff (1948) is more appropriate. They state that pain is a specific sensory experience mediated through nerve structures which are separate from those which mediate other sensations such as touch, pressure, heat and cold—that is, pain subserves a separate and specific sensory system.

By chronic rheumatic disease I allude to all those abnormalities of joints and tissues normally known as rheumatic, but exclude those which exhibit acute inflammatory symptoms and signs.

The object of this paper is to draw attention to the muscular system as a major source of the pain in these diseases, to describe a possible mechanism for its origin, and to mention some basic modes of treatment.

To this end you will bear with me if I first refresh your knowledge of the anatomical basis of pain, the types of pain, and the physiology of normal muscle, including the mechanism and chemistry of contraction.

ANATOMICAL BASIS OF PAIN.

Pain nerve endings are unmyelinated, beaded and finely branched. They are found, *inter alia*, in the deeper layers of the skin, in the walls of blood vessels, in the intercellular supporting structure of muscles, and in the ligaments and synovial membrane of joints. Joint cartilage has no pain nerve endings, and bone is very sparsely supplied; these structures can therefore be termed insensitive to pain (Lewis, 1943).

The conducting mechanism is separate from any other nerve path, and pain impulses pass via a sensory nerve to cell stations in the posterior root ganglia and thence through a synapse to the spino-thalamic tract on the opposite side of the cord to the thalamus, where they enter into consciousness. Cyriax (1943), quoting Woolsey, Marshall and Bard, states that pain reaches the cortex and is interpreted there as to localization; but the original work done by these authors on the cat and monkey used a skin tactile stimulus, and there is no proof that the analogy is factual. The paths of pain conduction from the

skin are distinct from those of the deep tissues, and clinically we have two separate types of pain which it is important to differentiate.

Pain Arising from the Skin.

The quality of the pain arising from the skin is of a distinct and constant type, depending only on length of the stimulus, not on its type. For example, (a) a short stimulus—needle prick, make-and-break of an electric current, a touch with a red-hot poker—is always interpreted as a pricking sensation; but (b) a long stimulus or a continuous stimulus of any kind is always interpreted as burning.

Localization is distinct and accurate.

Reflex phenomena include quickening of the pulse, rise in blood pressure *et cetera*—the "withdrawal reflex".

Deep Pain.

The quality of deep pain is more of an aching type and quite distinct from skin pain. The quality is constant for any given structure irrespective of the type of stimulus applied—for example, pulling out a hair or pressure on muscles.

Localization is deep, diffuse and inaccurately defined.

Reflex phenomena include slowing of the pulse, fall of blood pressure and muscle spasm of segmental distribution. Joints, muscles, deep fascia and blood vessels may give this vasovagal response (Lewis, 1943).

Rheumatic disease manifests deep pain almost exclusively, and the only occasion on which we are likely to observe skin pain is when a nerve trunk or root is stimulated, when a mixture of both types of pain is usually apparent.

HYPERALGESIA AND PAIN.

Hyperalgesic skin is skin that has been brought to that state by the action of certain tissue substances formed by injured skin (probably histamine), which act on the pain nerve endings, rendering them hyperexcitable or, in other words, lowering their threshold to pain. The pain nerve endings thus receive stimuli (for example, warmth) in a manner comparable with the specific heat receptor, but interpret it as pain. Normally the pain threshold is such that such a stimulus would have to reach an intensity which would be injurious to the organism before the pain sensory system would pick it up and interpret it as pain.

A similar mechanism is postulated as taking place in the deep tissues—for example, muscle working under ischaemic conditions (Kellgren, 1948).

PHYSIOLOGY OF NORMAL MUSCLE.

In normal muscle the blood supply is maintained by a capillary network in the connective tissue supporting individual cells.

Normal muscle is composed of 75% of water and 25% of solids, of which four-fifths are proteins, notably myosin and globulin X. The rest of the solids are carbohydrates and fats—mainly glycogen (which is derived from the sugar of the blood and averages 0.5% of the total solids), nitrogenous extracts (creatinine and urea), non-nitrogenous extracts (lactic acid and inosine), pigments (myoglobin—the red colouring and oxygen-carrying compound corresponding to the blood haemoglobin), enzymes and inorganic salts.

Mechanism of Contraction of Normal Muscle.

Individual muscle fibres are insulated and each is stimulated through its own nerve fibre. Individual muscle fibres obey the "all or nothing" principle—that is, the degree of its activity or force of its contraction is in no way related to the strength of its nervous stimulus.

In life both reflex and voluntary muscular contractions are tetanic in character—that is, they respond to a succession of closely spaced stimuli.

Muscular contraction is sustained by a succession replacement of individual muscle fibres, and the strength of the

¹ Read at the annual meeting of the Australian Association of Physical Medicine, March 29 to 31, 1954, at Melbourne.

contraction is proportional to the number of fibres stimulated.

The final activity of a muscle is determined not only by its nervous stimulation and its own condition at the moment of stimulation, but also by its subsequent mechanical experience. This point is of importance, as will be shown later, when muscles are associated with rheumatic joints.

Atrophy.

In disuse from any cause atrophy is brought about by the liquefaction of the muscle proteins by enzymes present in the cells. The vital structure of the contracting mechanism may remain intact and reversal take place under favourable conditions (Bradley, 1922).

Chemistry of Contraction of Normal Muscle.

The muscle is essentially a mechanism for transforming chemical into mechanical energy (Hill, 1923).

Chemical changes during muscular contraction are of two distinct types: (i) non-oxidative (no oxygen required); (ii) oxidative (adequate oxygen essential). In the first type glycogen is broken down, which leads to the production of lactic acid. In the second type lactic acid is oxidized to reform glycogen, carbon dioxide and water. Heat is thought to be produced in both these reactions.

Glycogen may be synthesized from either sugar or fat or both; but the former is more easily available and is utilized with less distress to the subject.

Oxygen in the Metabolism of Normal Resting Muscle.

Resting muscle secures its energy to sustain life by the breakdown of glycogen, and under suitable conditions remains flaccid. Lack of adequate oxygen results in contraction and stiffness. Active muscle has the same qualitative but increased quantitative changes.

A normal muscle may be compared with an electrical accumulator—it has an energy potential and requires external energy yielded by oxidation only when it is recharged (Morehouse and Miller, 1948; Hill, 1923).

Oxygen in the Metabolism of Normal Contracting Muscle.

It has been established that pain occurs if a normal muscle is kept working without adequate supplies of oxygen; that is, one of the causes of pain in normal active muscle is incomplete oxidation of the products of muscular metabolism (Kjessen, 1932).

This will be discussed in more detail in relation to muscles associated with arthritic disease.

Fluid Collection in Normal Muscle.

During muscular activity fluid from the blood collects in the substance of the muscle and may increase its mass up to 20%. This fluid may remain in the muscle tissue for many hours after the activity has ceased and is one of the factors responsible for stiffness in active muscle (Morehouse and Miller, 1948).

Fatigue.

Fatigue is a state in which there is a significant lack of balance between intake and output of biological energy—that is, a failure to maintain equilibrium—and may apply to both mental and physical activity. The causes are as follows: (i) depression or non-availability of stores of energy in the body; (ii) accumulation of end products hindering vital exchanges in the body—for example, accumulation of lactic acid suppressing muscular activity (Ranke); (iii) alteration of physico-chemical state—for example, excessive sweating leading to loss of chlorides.

The probable seat of fatigue is the motor end plates (Collier, 1936).

SUMMARY OF CAUSES OF PAIN IN NORMAL ACTIVE MUSCLE.

If for any reason muscle is working without an adequate supply of oxygen—for example, excessive activity or

vascular disease or occlusion—the end products of muscular metabolism accumulate. Probably the main offender is lactic acid (sometimes called the pain factor or factor P), which lowers the threshold for pain in the pain nerve endings, making them susceptible to stimuli which would not normally be interpreted as pain—for example, irritation by metabolic end products, muscle tension, pressure from accumulated fluid *et cetera*.

This pain is fundamentally chemical in origin and does not include reflex phenomena from outside sources.

CAUSES OF MUSCULAR PAIN IN RHEUMATIC DISEASE.

Muscular pain in rheumatic disease may be reflex, vascular or muscular in origin.

Reflex Phenomena.

Pain is derived from the fibrous capsule and ligaments of a joint, probably as a result of fibrosis and contraction (Kellgren, 1948; Fell, 1952) and leads to reflex spasm of its activating muscles if they are within its spinal segments. This is a simple spinal reflex (Kellgren, 1948), and the resulting muscle spasm is considered the initiating factor which, by interfering with the muscular blood supply, ultimately leads to anoxia and muscle pain.

Elliott (1952) has demonstrated by means of electromyography that the tender areas found in muscles within the spinal segments of the root origin of sciatic irritation are actually due to areas of localized spasm, and he postulated an associated irritation of the anterior root cells.

The tender areas in so-called fibrositis are probably mostly of unsuspected spinal origin; but it has been shown that certain tender areas actually initiate the impulses which stimulate local or distant muscle spasm.

Theories of Origin of the So-called "Myalgic Spot".

There are two theories of origin of the "myalgic spot", as follows: (i) the sensitized tissue theory—localized tissue sensitization by, for example, a previous infectious fever, which reacts to minor stimulation such as cold or another fever, resulting in local and reflex spasm (Copeman, 1942); (ii) herniation or inflammation and oedema of fatty nodules (Copeman and Eckermann, 1944).

In all these conditions injection of a local anaesthetic agent will break the reflex arc and abolish the spasm and pain, though the area relieved depends on whether the tender spot is the outcome of reflex activity or originates the reflex. In the former case local tenderness only will be abolished; but in the latter case the whole spastic area involved will be relieved.

Whatever the origin of these tender areas, it appears that they and the surrounding painful area are more or less spastic, and one cause of pain is the resulting faulty circulation.

Vascular Phenomena.

Most chronic arthritides are elderly and suffer from some disturbance of the circulation. Muscular cramps are common, and from their abrupt onset and the relief obtained by such agents as nicotinic acid would appear to be due to a primary spasm of the arterioles. No doubt minor degrees of spasm are frequently present which, while not causing complete ischaemia of the muscles, are a factor in the general anoxic condition leading to muscular pain.

Again, in the elderly with poor circulation and poor muscular activity venous stasis will normally occur, and the normal circulation of the fluid in the working muscle (up to 20% of its volume) may greatly increase; thus circulatory exchanges will be further hindered, and this will lead to metabolic spasm with still further interruption of circulation. This is frequently observable in the tense, painful, water-logged muscles covered by white, shiny skin in the lower extremities of the chronic arthritic. The anaemia which is usually present in chronic arthritis is a further factor aggravating these vascular phenomena.

Muscular Phenomena.

Reflex vascular origins of muscular pain have been described. Probably the most potent cause of muscular spasm associated with an arthritic joint rises from loss of the normal range of movement of the joint (Farkas, 1949, 1950, 1953). The cause of limitation in this normal range of movement in an arthritic joint appears to be either inflammatory or mechanical.

With regard to the inflammatory theory, Pemberton (1930) demonstrated that the blood flow is greatly disturbed by spasm of the capillaries round arthritic joints, and Meyer (1949) pointed out that joints are not a body cavity such as the peritoneum, but a highly organized enlarged tissue space, which is in direct communion with the systemic circulation; the synovial membrane acts as an osmotic filter between the joint cavity and the blood vessels, the synovial fluid being a filtrate of the blood plasma. Venous irritation and inflammation have been demonstrated in the vicinity of arthritic joints; this is thought to weaken the exchange equilibrium between synovial fluid and the circulation, leading to the absorption of toxins *et cetera* from the blood (Meyer, 1949). This in turn leads to inflammatory degenerative changes of the joint architecture and contractive bands in the capsule.

Farkas (1950) also describes venous congestion largely associated with the spine.

Farkas (1950), on the other hand, considers that the primary cause of the interference with normal joint function is always mechanical, and has demonstrated by X rays minor displacements of the articulating joint surfaces in early arthritis which he considers prevent full range. He further considers that the concentrated tetanic pull of the futile effort of the acting muscles to obtain full range leads to secondary articular changes through friction in the articular surfaces, producing chemical changes within the synovial fluid.

Whatever may be the combination of causes leading to restricted movement of a given joint, it is undoubted that the physiological pattern of muscular activity encountering resistance is that of tetanic spasm which is not relieved even at rest, as the mechanism of reciprocal innervation is upset because the new pattern of muscular activity is strange to the patterns of the higher and lower centres.

The mechanism by which this muscular spasm leads to secondary ischaemia and pain has been described.

SUMMARY OF CONDITIONS PRESENT IN CHRONIC RHEUMATIC DISEASE.

Essentially in chronic rheumatic disease the patient is past middle age, with poor muscular tone, moderately severe general anaemia and often nervous instability and low blood pressure. Spasm occurs in the muscles associated with the affected joints, leading to ischaemia. Metabolites build up, with the following results: (i) factor P—leading to lowering of the pain threshold and general tenderness, and pain from minor stimuli; (ii) metabolites—leading to pain; (iii) lactic acid—leading to further depression of muscular activity. Lack of normal muscular action impedes the venous return, further hindering the circulation and oxidation, and leading to increased oedema of the muscles and increased stiffness.

The foregoing conception has been built up to explain the repeated observations of my assistant, Sister Gilmour, that in a chronic arthritic spastic areas in different parts of the body become apparent as the chief site of pain during regular prolonged treatment. These areas can always be relieved by the application of heat and massage, but usually return within a short period.

It was apparent, then, that the exciting cause was not permanently removed by physiotherapy.

General treatment to build up the patient's muscular tone and bring the blood haemoglobin value as high as possible was found to be of considerable assistance, but not adequate to relieve the muscular pain and stiffness.

As the essential lesion under consideration is an ischaemic and spastic condition of muscle, it would appear that either the circulatory deficiency or the irritable muscle could be attacked with relief of the vicious circle.

BASIS OF TREATMENT.

The basis of treatment is as follows: (i) to improve the circulation by (a) drugs and (b) posture; (ii) to relieve muscular spasm by (a) renewing the full joint range, (b) the administration of drugs, (c) interrupting the reflex arc.

Improvement of the Circulation.

Relief of Anoxaemia by Stimulating the Circulation.

The only two drugs found clinically useful in stimulating the circulation were "Priscol" and nicotinic acid. Both were capable of relieving the severe spasm complained of as cramp by the patient. Of the two, "Priscol" appeared the more effective and gave better results in affections of the neck and shoulders than in the lower extremities. This is no doubt due to the fact that gravity is able to effect drainage from the upper parts of the trunk to compensate for the increased circulation from dilatation of the arterioles, but in the lower extremities increased congestion may ensue.

CASE I.—A trolley bus driver, aged forty-eight years, complained of severe pain in the neck and shoulders. The posterior neck muscles were extremely tender and spastic, and he was unable to turn his head to back his bus. The condition had existed with increasing disability for five years. X-ray examination of the cervical part of the spine disclosed gross osteoarthritis with several degenerated discs. For two or three months routine physiotherapy was employed without much change in the condition. "Priscol" was tried rather as a last resort, but the result was surprising. The taut muscles relaxed, spinal manipulation was able to be undertaken with effect, and within a few weeks he had 90% normal neck movement without further physiotherapy. He has not relapsed in twelve months, but takes a short course of "Priscol" if pain commences.

CASE II.—The patient, aged fifty-four years, suffered from severe prolonged chronic gout, the main disability being a spastic, oedematous condition of the muscles of the thigh and calves. Bony changes were minimal. His blood pressure was 110 millimetres of mercury, systolic, and 70 millimetres, diastolic. Continuous attention to the blood picture could not bring the haemoglobin value much above 80%, or the number of erythrocytes above 4,000,000 per cubic millimetre. Large doses of nicotinic acid appeared rather to aggravate the stiffness and tenseness of the lower extremities. Attempts at general stimulation of the circulation by "Cardophyllin" likewise failed to produce clinical improvement to any great extent.

Relief of Anoxaemia and Stagnation of the Circulation by Posture.

Farkas (1949) drew attention to the benefit derived by permanently elevating the foot of the patient's bed some six inches in cases of disorders of the lower part of the back, postulating among other things that the venous congestion associated with certain spinal disabilities was relieved, with resulting amelioration of the symptoms.

I have had insufficient experience of this method in chronic arthritis to form an opinion as to its efficacy, chiefly because patients outside hospital appear to have an aversion to "sleeping upside down".

Relaxing the Muscles.

Relaxation of muscles is achieved by relief of spasticity, and by methods of treatment designed to interrupt a reflex arc.

Relief of Spasticity.

By Renewing the Full Range of the Affected Joint.—The rationale of the method of renewing the full range of the affected joint has been already explained; it is the basis of the success so frequently observed in treatment by the so-called bone setters and manipulators. This is usually impracticable in advanced arthritic disease owing to irreversible changes in the joint or capsule; but in early

cases, particularly in relation to the lumbar and cervical parts of the spine, success is often apparently complete.

CASE III.—A female patient, aged twenty-six years, had complained of low back pain for three years. Spinal movements were restricted in all directions. X-ray examination disclosed early lipping of the lumbar part of the spine. The lumbar muscles were spastic. She was put through a routine of spinal exercises designed to increase the range of movement in every direction. No forced manipulation was attempted, but the movements were assisted weekly, while on each of the other days she went through them herself. After some six months spinal movement was normal and pain and spasm were completely absent. She has remained well for eighteen months.

Such cases as these are not exceptional.

CASE IV.—A male patient, aged forty years, complained of pain in the posterior muscles of the neck radiating down the right shoulder area. There was tenseness in the posterior neck muscles and in the upper area of the right trapezius. X-ray examination revealed early lipping of the cervical spine. Neck movement was restricted; manipulation was carried out after temporary relief of the spasm by short-wave diathermy and massage, and the relief was lasting.

By Attempting to Relieve the Muscular Spasm by Drugs.—The word "drugs" in the heading is used for the sake of simplicity in separating the use of drugs from the injection of "Novocain", though the action of these drugs could be said in most cases to be the interruption of a reflex arc. The most useful drug in my experience is "Prostigmin". Given intramuscularly in doses of 0.5 milligramme, it will relieve for several hours the severe spasm often associated with osteoarthritis of the hip, allowing manipulation to be performed. The effect of "Myanesin", either in the form of the elixir or associated with other drugs, as in "Mephasol", is unpredictable in my experience. The long-acting antihistaminics, quinine, "Bellergal" and tubocurarine in oil all have their advocates, while valerian in the form of "B Elixir Euvalerol" is a useful sedative at night. The use of such drugs to relieve the muscular spasm of chronic arthritis is a field calling for further research.

Methods Which Appear to Interrupt a Reflex Arc.

Injection of Local Anæsthetic into the Affected Joint.—Treatment by the injection of local anæsthetic agent is primarily of use for a joint which is actually painful in itself, and movement is sometimes improved. The nature of the solution appears to be of little moment and results are indefinite (Desmarais, 1952).

Recently hydrocortone has been available and is often dramatically successful in relieving pain; but I have had little success in the treatment of a chronically affected joint with associated muscular spasticity.

Injection of Trigger Points with "Procaine".—There is no question that in many cases the injection of tender areas in spastic muscles will relieve the pain and spasm of so-called muscular rheumatism or fibrositis. The degree of success depends on whether localized spasm follows reflex irritation of the anterior horn cells, or whether it in itself is the origin of the impulses which result in the spasm of the surrounding muscles.

SUMMARY.

1. Pain in chronic rheumatic disease is considered to have its origin in the surrounding musculature rather than in the affected joint.

2. Ischemia is the fundamental basis of the pain.

3. Treatment is directed towards improving the local blood circulation.

REFERENCES.

- BAYER, H. (1952), "Importance of Spinal Innervation in the Aetiology of Muscular Rheumatism", *Rheumatism*, 8: 41.
- BRADLEY, H. C. (1922), "Autolysis and Atrophy", *Physiol. Rev.*, 2: 415.
- COLLIER, H. E. (1926), "The Recognition of Fatigue, with Special Reference to the Clinical Diagnosis of Morbid Fatigue in Industry", *Brit. M. J.*, 2: 1322.
- COPEMAN, W. S. C. (1942), "Text Book of the Rheumatic Diseases", Livingstone, Edinburgh.
- COPEMAN, W. S. C., and ACKERMAN, W. L. (1944), "Fibrositis of the Back", *Quart. J. Med.*, 13: 37.
- CYRIAX, J. (1948), "Rheumatism and Soft Tissue Injuries", Hamilton, London, 42.
- DESMARAIS, M. H. L. (1952), "Value of Intra-articular Injections in Osteo-arthritis", *Ann. Rheumat. Dis.*, 2, 4: 277.
- ELLIOTT, F. A. (1952), "Localized Muscle Spasm", *Lancet*, 2: 4.
- FARKAS, A. (1949), "Position of Rest of the Spine in Treatment of Sciatica, Malum Coxae, Frozen Shoulder", *Rheumatism*, 5, 1: 7.
- FARKAS, A. (1950), "On the Patho-mechanism and Therapy of the Low Back Syndrome, with Special Reference to Osteoporosis of the Spine", *Rheumatism*, 6, 4: 159.
- FARKAS, R. (1953), "Frozen Shoulder (Scapulo-hipital Syndrome)", *Brit. J. Phys. Med.*, 16, 9: 187.
- FELL, W. A. (1952), "Treatment of Osteo-arthritis of the Hip by Cocaine Injections", *Ann. Rheumat. Dis.*, 2: 232.
- HILL, A. V. (1923), "Muscular Exercise, Lactic Acid and the Supply and Utilization of Oxygen", *Quart. J. Med.*, 16: 135.
- HOWELL, W. H., edited by FULTON, J. F. (1953), "Text Book of Physiology", Saunders, Philadelphia.
- KELLGREN, J. H. (1948), "Anatomy and Physiology of Pain", in Copeman, W. S. C. (1948), "Text Book of the Rheumatic Diseases", Livingstone, Edinburgh, 22.
- KELLGREN, J. H., and SAMUEL, E. P. (1950), "The Sensitivity and Innervation of the Articular Capsule", *J. Bone & Joint Surg.*, N.S. 32B, 1: 84.
- KENDALL, H. O., KENDALL, F. P., and BOYNTON, A. (1952), "Posture and Pain", Williams and Wilkins, Baltimore.
- KISSEN, M. (1932), "Relation of Induced Anoxemia to the Pain of Muscular Exercise", *Proc. Soc. Exper. Biol. & Med.*, 16: 135.
- LEWIS, T. (1943), "Pain", Macmillan, New York.
- MEYER, O. (1949), "Treatment of Arthritis", *Rheumatism*, 5, 1: 21.
- MOREHOUSE, L. E., and MILLER, A. T. (1948), "Physiology of Exercise", Mosby, St. Louis.
- PAMBERTON, R. (1930), "Arthritis and Rheumatoid Conditions", Baillière, Tindall & Cox, London.
- SCHNEIDER, E. C. (1940), "Physiology of Muscular Activity", 2nd Edit., 1940, Saunders, Philadelphia.
- TROMMER, P. R., and GELLMAN, M. B. (1952), "Trigger Point Syndrome", *Rheumatism*, 8: 67.
- WOLFF, H. G., and WOLFF, S. (1948), "Pain", Blackwell, London.
- WOOLSEY, C. N., MARSHALL, W. H., and BARD, P. (1941), "Observations on Cortical Somatic Sensory Mechanisms of Cat and Monkey", *J. Neurophysiol.*, 4: 1.

THE USE AND ABUSE OF PHYSICAL TREATMENT IN INDUSTRIAL MEDICINE.¹

By LEIGH T. WEDLOCK,
Melbourne.

PHYSICAL MEDICINE and industrial medicine are closely linked together; this close liaison is illustrated by the very title of the *British Journal of Physical and Industrial Medicine*.

In industrial injuries the purpose of physical treatment is to relieve pain and to get the patient back to work as soon as possible—in other words, not only to accelerate his recovery, but to ensure that such recovery is as complete as possible.

All medical men who care for injured persons should be well informed of the scope of properly directed and applied physical therapy in promoting the restoration of function; this applies particularly to industrial physicians and surgeons.

Any reduction in the time away from work is not only of economic value to the employer and the patient, but also of immeasurable psychological benefit to the latter.

It is well for us sometimes to place ourselves in the position of the patient and try to visualize his reactions. Let us look at the employee away from work for many weeks with a low back injury. As time goes on he worries more and more as to whether he will ever be fit for his job again, and the longer he is away from work the greater becomes this fear. Should he return to work and break down, this fear now looms like a cloud over his future.

Although cases of malingering and the "compensation back" syndrome do occur, I am convinced that in the

¹ Read at a meeting of the Section of Industrial Medicine of the Victorian Branch of the British Medical Association on June 22, 1954.

majority of cases in which incapacity seems to be prolonged out of all proportion to organic injury, it is this fear of the future which is the basis. The remedy is obvious. Recovery must be as speedy and complete as possible.

Early return to work is of paramount importance, not only for economic reasons (for both employer and employee), but also for the psychological effect on the patient; and it is here that industrial surgeons can play a great part, particularly if the firm is cooperative. This is a field which has been sadly neglected in this country, but which is exploited to the full in some of the great industrial centres in England.

Let us take the labourer doing heavy work who sustains a low back injury. There is no need for him to stay away from work until he is fit for heavy work; it is far better for all concerned for him to return to light work as soon as possible, and gradually work back into his normal heavy job. In many cases he can carry on with physical therapy two or three times a week while at his light job, until he is completely cured.

The patient with teno-synovitis of the wrist can often be put on a job involving no strain on the injured region while splinting and physical therapy are being carried out. The cost of the time away from work for treatment would be fully repaid to the employer and the insurance company concerned. The employee, happy and occupied, with his regular wages, will recover much more quickly.

Time precludes further discussion of this important aspect; but the rehabilitation work carried out for injured workers in large industrial concerns in Great Britain is an example to the world. Such work requires the cooperation of large industrial concerns; but it must come here eventually, and you can all help by trying to gain this cooperation.

In attempting to outline the uses of physical therapy in industrial injuries, I propose first to enunciate some of the principles involved, and then to illustrate these by brief reference to some common problems encountered in every-day work.

The object of physical therapy in injuries varies with the type of injury and the individual patient.

Just as general surgical principles must be maintained in the treatment of various forms of injuries, while the treatment in individual cases may vary widely, so must physical measures be adapted to each individual case.

In acute injuries there occur extravasation of blood and lymph from torn vessels, oedema from increased transudation of lymph, and possibly tearing of muscles, ligaments and tendons, or even injury to cartilage and bone. The primary treatment, therefore, is to stop hæmorrhage, treat shock, prevent infection, and provide physiological rest for undisturbed healing. In the early stages granulation tissue formed is soft; but later the blood vessels disappear and fibrosis occurs. Fibrous bands limit motion and cause pain by stretching nerve endings. Muscles atrophy from disuse, or nerve damage, or impairment of circulation.

In many cases of untreated injury a vicious circle is set up; pain limits movement; adhesions appear, due to immobilization alone or to organization and fibrosis of extravasated blood or lymph; shortening and contraction of musculo-tendinous structures may occur; and muscle wasting and weakness further increase the degree of disability.

It is apparent, therefore, that the initial period of rest must be kept to a minimum; muscle power must be maintained, absorption of blood and lymph must be promoted, and early movement must be begun.

Physical therapy has been regarded as work to be carried out after the surgeon has completed his work. This is a tragedy, because it is soon after trauma that such treatment is of greatest value.

It is obvious that the length of the initial period of rest is determined largely by the nature of the injury; in the treatment of a sprained ankle, movement can be started in a few days; after a fracture of the lower

extremity many months may elapse before movement may begin in the region of the fracture. The period of rest is also determined by the skill of the physical therapist; only with a well-trained staff and careful supervision can early mobilization be initiated, and the early stages are when it is most valuable.

In the first few days, unless immobilization is essential (as in fractures), rest, elevation and the pressure bandage help reduce swelling, and anodal galvanism is valuable at this early stage to reduce pain and swelling also.

After a few days the application of heat and gentle massage to the periphery of the injured area relieve pain and muscle spasm, and gentle active movements may begin.

In subacute and chronic cases heat is a valuable weapon to speed up repair, relieve pain, and increase circulation; and various forms are chosen according to the site of the injury. Infra-red radiation is useful only for superficial heating as the penetration is limited to an inch or two. For deeper heating we use diathermy, or even more efficient is short-wave therapy. Paraffin wax baths, giving a moist heat, are invaluable for stiff fingers.

Massage reduces swelling and eases muscle spasm, thus preparing the way for active exercises which are designed to increase the range of movement. Various mechanical devices may assist these measures—for example, the shoulder wheel, the stationary bicycle, the pronator-supinator apparatus—and by the addition of resistance to the exercise muscle power may be increased.

Muscle wasting and weakness are easily prevented; it is far more difficult to restore power. Even in recent injuries, careful muscle-setting exercises make possible the retention of power even when movement of a joint is impracticable, and when this is difficult owing to immobilization, the daily use of the portable Bristow coil is invaluable. No longer need the surgeon with a fractured leg watch the quadriceps waste under his eyes.

Passive movement is dangerous except in skilled hands.

Scars may be softened by chlorine ionization, ultrasonic therapy or massage with lanolin; the local application of ultra-violet light may assist in cases of stubborn local infection and indolent ulcers.

Manipulation may be required in cases of post-traumatic adhesions, and in all such cases physical therapy follow-up must be instituted within forty-eight hours, otherwise much of the benefit will be lost.

The injection of 0.5% "Novocain" solution into local areas of tenderness may be valuable, not only in relieving pain and assisting recovery, but also diagnostically—for example, in the differentiation of a low back strain and the disk syndrome.

Splinting will be necessary in peripheral nerve lesions, together with electrical stimulation to maintain muscle tone, and passive movement to prevent joint stiffness.

Physical therapy has been, and still is, subject to a lot of abuse, and this must be faced with honesty. It is apparent that there are a large number of physical therapeutic procedures which for their success require a highly trained personnel; but this is not enough. Adequate training and experience in the selection of these measures are essential, not only initially, but during the progress of each case as the picture alters. It is preposterous to embark on the physical therapeutic conduct of traumatic cases with a single piece of apparatus—usually an infra-red lamp or a diathermy machine. The selection and careful administration of each modality are just as important as the selection of drug therapy in medicine. We are often told that "Mr. Brown had physiotherapy and it did him no good". This is about as informative as saying that Mr. Brown had a bottle of medicine for indigestion, and it did him no good.

Physical therapy demands only the best—nothing else will do.

There are certain obvious safeguards for a satisfactory service which may be set out as follows: (1) An accurate diagnosis is essential. (2) Physical therapy must be indicated and used only with due regard to other medical

and surgical measures. (iii) A wide variety of measures must be available, with a careful selection of the appropriate modalities and their administration by trained personnel. (iv) There should be a close liaison between the surgeon and the physical therapy service. (v) Management is perhaps the most important single factor.

Physical measures are designed to assist and not to replace the patient's own efforts. His active cooperation must be secured from the outset, and he must be made to realize that the final result depends mainly on his own efforts. Nowhere is this better seen than in the treatment of the painful stiff shoulder. Rarely do we fail to get a satisfactory result, and rarely do we need to resort to manipulation, despite the fact that many of these patients have had physical treatment without avail before they reach us. Why is this? Partly it is because of our own experience and a few tricks; but mainly it is because, assisted with sedation and pain-relieving measures, we persuade the patient to persist with exercise. Some have to be coaxed, others bullied, and a few—a very few—restrained from being too vigorous.

Throughout treatment, range of power and joint movement is recorded regularly at least each two weeks. This is of vital importance for two reasons: (i) The moment we can demonstrate to the patient a definite objective improvement, he is convinced that he is on the right track and will persevere, otherwise he becomes tired, as we would ourselves. (ii) It prevents the giving of unnecessary treatment. If progress ceases we must consider the use of other measures—for example, manipulation or the termination of treatment. The moment the patient can carry on the rest himself, treatment must cease. It is bad enough to deny the patient the benefits of physical therapy; it is even worse to give unnecessary treatment.

Let us look briefly at a few common conditions encountered.

Fractures.

In the treatment of fractures, from the outset joints away from the site of injury must be watched and put through their range of movement. For example, in a Colles's fracture, attention must be paid to fingers, elbow and shoulder. We still encounter cases of a stiff shoulder following a Colles's fracture, and this should not occur. It is important to realize that this cannot be left to the patient. With his arm in a sling he often does not realize that his shoulder is becoming stiff.

In the vicinity of the injury, whenever possible, muscle power must be maintained by muscle-setting contractions or faradic stimulation. As soon as union is reasonably secure, mobilization is begun with graduated assisted active movements. With an impacted fracture of the neck of the humerus this can begin in a week; with a non-impacted fracture of this region, in three to four weeks.

In the lower extremity mobilization can be well under way before weight-bearing is possible.

When union is slow, residual joint stiffness is inevitable; this is particularly the case in the lower extremity. Mobilization then requires short-wave therapy, massage, and exercises to restore the range of joint movement, and resistance exercises to restore muscle power. Mechanical devices are at times useful—for example, the shoulder wheel, stationary bicycle, pronator-supinator apparatus.

Dislocations.

In the treatment of dislocations, the application of heat, gentle massage and assisted active movements can begin early, provided care is taken during the initial phases of the treatment to avoid any particular movement likely to reproduce the dislocation. Early movement is the great secret in the prevention of post-traumatic stiffness of joints. It requires a capable physical therapy service, and a surgeon who has confidence in it.

Sprains.

In the acute phase of the first few days after a sprain, rest, elevation, the application of a pressure bandage, and anodal galvanism reduce swelling and pain. Short-

wave therapy, massage and exercises rapidly complete the cure. The average patient with a sprained ankle can get a good result in three weeks or so. It is true that some sprained ankles, especially the mild ones, may recover well without treatment; but they take longer, and there is always the risk of what we often see—the chronic sprained ankle, stiff, swollen and painful; it may take many weary weeks before recovery is anywhere near good, much less complete.

Strains.

Strains of muscles may also be relieved at times by the injection of 0.5% "Novocain" solution.

Shoulder Injuries.

Shoulder injuries are important. Even minor injuries, if neglected, can lead to the development of the "frozen shoulder". The secret of prevention is early movement, assisted by heat and massage, once the acute phase is past. Muscle strains clear up quickly. Tendinitis of the shoulder—characterized by a "catch pain", the presence of Dawbarn's sign and local tenderness—is slow. The patient can continue to work provided that no stress or strain on the shoulder is involved. Short-wave therapy is given three times a week, with a few active movements to prevent stiffness; but these patients often require treatment for six weeks or so.

The established "frozen shoulder", with considerable limitation of movement, requires a great deal of management. Short-wave therapy, massage, and active exercises two or three times a week usually produce a satisfactory result in four to eight weeks. We now usually reserve manipulation for those few patients who fail to show improvement (checked with regular careful measurements) in four to six weeks. X-ray therapy is sometimes helpful when pain is severe.

When manipulation is performed, it is imperative that physical therapy follow-up should begin as soon as possible—within forty-eight hours—otherwise much of the benefit is lost.

Tennis Elbow.

Tennis elbow is one of the mysteries in the response to treatment. Various forms of physical therapy, "Novocain" injections, and in selected cases manipulation, are persevered with for four weeks. In the majority of cases this regime, together with the avoidance of undue strain, produces relief of most, but not all, of the disability. When there is no benefit after this time, we usually advise the patient to do no more except leave it to time, knowing that the disorder is not serious and will eventually go.

In only a few cases will the patient consider surgical treatment for such a condition.

Tenosynovitis.

Splinting, a change of job, and physical measures, are usually successful in the non-stenosing variety of tenosynovitis, but a few cases follow a protracted course.

Low Back Injuries.

Low back injuries often lead to a great deal of trouble. They may be divided into two groups—diskogenic lesions and others.

Disk Lesions.

Major disk lesions, with severe sciatic pain, rigidity in the lower part of the spine, scoliosis, the presence of Lasègue's sign, and in some cases sensory or motor impairment including absence of the ankle jerk, present no diagnostic problem; but in minor cases the diagnosis may be difficult and at times impossible.

My own criteria are to regard the condition as a disk lesion if severe pain and pronounced stiffness of the lower part of the spine are accompanied by Lasègue's sign in the absence of severe local muscle tenderness. Scoliosis is further evidence. X-ray examination is not very helpful in my experience; it may reveal a narrow space, but if the findings are negative it means nothing. The taking of a spinogram with a contrast medium such as "Myodil" is

useful in difficult cases, but I would not lightly have this performed on myself. Absolute rest in bed with sedation for two to three weeks usually gives relief, and the patient can then be fitted with a low spinal brace to wear for three to six months.

In less acute cases less stringent measures may be required, and in the treatment of some ambulatory patients mildly affected, physical therapy and manipulation may help.

Operation is required in my experience in a minority of cases—those in which conservative measures fail, or recurrent cases. I am convinced that in acute cases manipulation is dangerous and should not be performed unless one is prepared to go straight on to operation if exacerbation occurs.

Other Low Back Injuries.

Most of the non-diskogenic low back injuries fall into the group of muscle and ligamentous strains.

After rest in bed for a week or so, till the acute phase is past, physical therapy should be employed. "Novocain" solution (0.5%) injected into localized tender areas is often helpful and at times a great help in diagnosis.

I well remember a patient with low back strain who was sent to me. She was a woman, aged forty years, and the strain had occurred a week previously. She had severe pain, rigidity of the lower part of the spine and pronounced scoliosis; Lasègue's sign was elicited by 20° of flexion of the left thigh and by 45° of flexion of the right thigh. I must admit that I thought she was suffering from a disk lesion. However, she did have considerable tenderness in the lower part of the left sacrospinalis muscle. Injection of this area with "Novocain" not only gave dramatic relief of pain, but caused an improvement in respect of Lasègue's sign, which was now elicited by 45° of flexion of the left thigh and by 70° of flexion of the right thigh. She made a rapid recovery and proved her local doctor to be right in his diagnosis.

Short-wave therapy, massage and exercises complete the cure. In all cases it is important to see that a full range of movement and full muscle power are obtained before the patient's return to heavy work. Unless this is done, the patient either breaks down or has persistent pain and stiffness in the back due to adhesions. In such cases of post-traumatic stiffness of joints of some duration, when the original injury has not seriously involved bone or joint, and when the X-ray findings are normal, we frequently carry out manipulation (usually without a general anaesthetic) and follow this up with intensive physical therapy. Very often the patient can return to light work and continue treatment until he is fit for heavy duties.

Prevention.

The incidence of back injuries can be greatly reduced if employees are instructed how to lift correctly, using their knees instead of putting all the strain on their back muscles. It is useful to display round the factory posters depicting the correct method of lifting.

In back injuries complicated by underlying spondylitis recovery may be very slow, and return to heavy work may prove impossible.

Peripheral Nerve Lesions.

Nothing can hasten regeneration after peripheral nerve lesions; but splinting prevents overstretching of muscles, passive exercise prevents adhesions and joint stiffness, and massage and electrical stimulation maintain muscle tone, so that if regeneration occurs an efficient peripheral motor mechanism is available.

I believe that there is a need for special reference to the subject of electrical testing in peripheral nerve lesions.

It has long been known that in lesions of the lower motor neuron abnormalities occur in the electrical reactions of muscle and nerve which are known as reaction of degeneration, and the classical method of testing with galvanic and faradic current has been used to determine the presence of such a lesion, its site and its extent.

In the past this has often proved unsatisfactory, for two reasons: (1) The satisfactory performance and interpreta-

tion of the test require a great deal of experience, and the reliability of the report varies directly with the experience of the operator. In all but simple cases it is beyond the scope of the average physiotherapist. (ii) The test is very crude and even in experienced hands may lead at times to fallacious conclusions. It is unsatisfactory in following up progress. In all cases it should be supplemented with either electromyography or the plotting of intensity-time curves. Each method has its advantages, but for purely clinical use, in common with many overseas authorities, I prefer intensity-time curves. This preference is based largely on practical and technical grounds.

The plotting of intensity-time curves requires considerable technical knowledge and experience, not only in carrying out the test, but in interpreting the curves obtained; but the value is tremendous. After two years' experience with the method—during the initial stages of which we encountered many difficulties—I believe that for the first time we can give a reasonably accurate report.

The method is not perfect—but even an X-ray report or an electrocardiogram is not infallible. However, in the vast majority of cases we can now detect with reasonable accuracy the presence and extent of a lower motor neuron lesion, and certainly for the first time we can accurately follow up the progress of a lesion by serial testing. This is often of considerable value, not only in prognosis, but in the surgical management of the case—in deciding when to operate and when to wait.

No patient with paralysis should be labelled as having a functional lesion or malingering unless electrical testing is carried out. I have seen a case of radial paralysis associated with a fractured humerus labelled as functional; an electrical test carried out much later revealed a complete lesion necessitating exploration.

Conclusion.

I hope these few examples have served to illustrate the value of physical therapy in industrial injuries. Let me conclude by saying that the value of physical treatment depends entirely upon training, experience and the intellectual honesty of the practitioners prescribing and administering it.

References.

- KOVACS, R. (1949), "Uses and Abuses of Physical Medicine in Industrial Medicine", *New York State J. Med.*, 49: 1934.
- WEDLICK L. T. (1953), "Further Experiences with the Use of Intensity-Time Curves in the Electro-Diagnosis of Nerve Lesions", *M. J. AUSTRALIA*, 2: 921.

THE FREQUENCY OF IMMUNIZATION OF RH-NEGATIVE WOMEN BY RH ANTIGENS.

By KATHLEEN CLEMENS and R. J. WALSH,
From the New South Wales Red Cross Blood
Transfusion Service, Sydney.

THE role of Rh antigens in the production of hæmolytic disease of the newborn has received much publicity, and the Rh-negative woman, especially if she has been a blood donor, is too often aware of the possibility that her Rh-positive offspring may suffer from the disease. Even prior to conception she has frequently been regarded as a reproductive failure. Such erroneous ideas, which cause much distress to the individuals concerned, can be corrected only if the incidence of maternal immunization is known. Whilst it is well recognized that the frequency of immunization increases progressively with the number of pregnancies experienced by these women, there is little information concerning the percentage immunized with each pregnancy. In this paper an attempt is made to present these latter figures.

Methods and Materials.

All hospitals in New South Wales, with the exception of the larger maternity units, regularly refer blood samples from all Rh-negative (D-negative) pregnant women to the

Red Cross Blood Transfusion Service. This enables the Rh grouping to be confirmed and the serum to be investigated for the presence of Rh agglutinins. Usually blood samples are received from each woman early in pregnancy and at about the thirty-fourth week.

The sera are examined for both saline and albumin agglutinating antibodies, and any giving positive reactions are further tested by indirect Coombs tests. The specificity of agglutinins is determined by performing the tests against a panel of Rh-positive and Rh-negative red cells. The methods used are as described by Race and Sanger (1950).

An analysis has been made of the incidence of immunization of pregnant Rh-negative women whose blood was tested during the period 1949 to 1953. None were included if the patients were selected by hospitals on the basis of a suggestive history or on the result of preliminary screening tests. Two hospitals have forwarded blood samples from Rh-negative women only if the husbands were tested and found to be Rh-positive (D-positive). These patients have all been excluded from the analyses. The subjects included therefore represent a random selection of Rh-negative (D-negative) pregnant women.

Some women have been investigated during the course of several pregnancies and the findings in each pregnancy have been recorded. On some occasions the first examination has disclosed the presence of agglutinins, but the history has suggested that immunization had occurred during an earlier pregnancy. In the absence of specific proof incriminating a previous pregnancy, the findings during the pregnancy current at the time of examination have been included.

Results.

Investigations were made during a total of 5694 pregnancies of Rh-negative women with the results shown in Table I and graphically in Figure 1. It is clearly seen that with succeeding pregnancies there is a progressive increase in the percentage of women immunized. This reaches a figure of 27.5% in those who experienced six or more pregnancies.

Of the nine women who developed agglutinins during the first pregnancy, a history of a previous blood transfusion was obtained in four instances. It will be noted that fewer subjects were investigated during the first than during the second pregnancy. This was due to the fact that Rh testing of primiparous patients is not universally undertaken.

It is possible to calculate the incidence of immunization of Rh-negative (D-negative) women who are married to Rh-positive (D-positive) husbands. The assumption is made that 17% of the women investigated are married to Rh-negative (D-negative) husbands and are therefore not exposed to the risk of immunization by Rh-positive (D-positive) fetuses. These calculated figures are also shown in Table I and Figure 1.

Discussion.

From a practical point of view, an Rh-negative woman who is married to an Rh-positive husband frequently desires information concerning the chances of her becoming immunized against Rh antigens. If the genotype of her husband is not known, she can be told that the risks of immunization during the first pregnancy are about 1 in 143. If she escapes during the first pregnancy, there is 1 chance in 14 of immunization occurring in the second. With succeeding pregnancies the risk of initial immunization is about 1 in 14 in the third, 1 in 12 in the fourth, and 1 in 8 in the fifth pregnancy. These calculations are based on the assumption that there is no difference in the number of pregnancies experienced by Rh-negative women married to Rh-positive husbands and the number experienced by other women. It is probable, however, that many Rh-negative women who have been immunized do not embark on further pregnancies and therefore that the chances of initial immunization are slightly greater than the foregoing calculated figures.

If, either by family investigations or by serological studies, the husband has been found to be heterozygous in respect of the D antigen, the chances of the wife's being immunized are considerably less than when the husband is homozygous. This is because only half the children of the heterozygous husband and all those of the homozygous husband will be Rh-positive. It follows, therefore, (1) that most husbands of immunized Rh-negative women will be homozygous DD (Mollison, 1952, states that 75% fall into this category—a figure which is to be compared with 44% of Rh-positive individuals), and (2) that the chances of immunization in any particular pregnancy of an Rh-negative woman married to a heterozygous Rh-positive

TABLE I.
The Incidence of Hemolytic Disease of the Newborn in Different Pregnancies.

Number of Pregnancy.	Number of Rh-Negative Patients Investigated.	Number of Patients Immunized.	Percentage of Patients Immunized.	Percentage of Rh-Negative Women, Married to Rh-Positive Husbands Who are Immunized.
1	1511	9	0.6	0.7
2	1948	128	6.6	7.9
3	1192	138	11.6	14.0
4	539	95	17.6	21.2
5	288	68	23.6	30.6
6 or more	236	67	27.5	33.2

husband are considerably less than, and those of an Rh-negative woman married to a homozygous husband slightly greater than, the figures calculated above. However, there does not seem to be sufficient information available at present to permit accurate calculations to be made of the chances when the husband's genotype is known. Moreover, this information is only very rarely available before

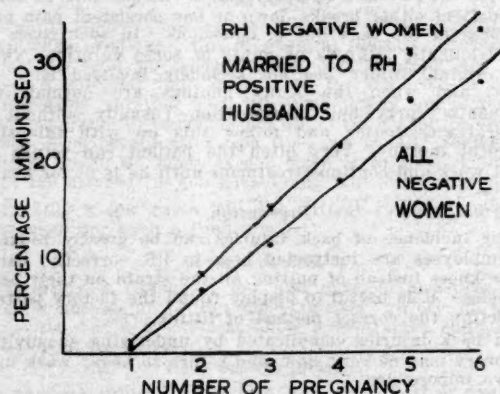


FIGURE 1.

the Rh-negative woman becomes immunized, and there is little reason why it should be obtained. As Brewer (1949) has said: "There are far more important 'incompatibilities' that may arise in marriage than those due to the Rh factor."

The figures that have been presented above for the incidence of immunization do not necessarily represent the incidence of hemolytic disease of the newborn. In a number of instances immune antibodies would have resulted from immunization during earlier pregnancies, and the current pregnancy be associated with the presence of an Rh-negative fetus. If it is correct that 75% of the husbands of immunized women are homozygous (Mollison, 1952), it follows that 87.5% of all infants of Rh-negative women with agglutinins in their serum would be Rh-

positive and therefore suffer from hæmolytic disease of the newborn. As a consequence there would not be a large difference between the incidence of the disease and the frequency of immune agglutinins in the maternal sera.

Undoubtedly some mild cases of hæmolytic disease of the newborn are not diagnosed as such. This and the factor discussed above probably explain why the figures presented in this paper are higher than those reported by other workers. Most workers have investigated the incidence of the disease rather than the incidence of maternal immunization. For example, Pickles (1949), in a series of 696 Rh-negative women, found that the disease occurred in one out of 20 in their fourth and fifth pregnancies and one out of 13 in the sixth pregnancy. On the other hand, Sachs, Kuhns and Jahn (1947) found that 8.5% of 908 multiparous Rh-negative women with Rh-positive husbands had been sensitized.

A history of previous blood transfusion or intramuscular injection of blood to the mother is sometimes obtained when hæmolytic disease occurs in the first-born Rh-positive child. When this history is not elicited, it is supposed that such an event may have occurred in early infancy and that the patient is not aware of it (Levine and Waller, 1946). In view of the findings presented in this paper, it seems reasonable to suppose that at least some of the mothers who are immunized during the first pregnancy are unusually susceptible to the fetal Rh antigen without earlier parenteral injection of blood.

Summary.

The frequency of immunization against Rh antigens has been investigated during 5694 pregnancies of Rh-negative women. There is a progressive increase in succeeding pregnancies producing a linear relationship between the number of the pregnancy and the percentage of women immunized. It has been calculated that an Rh-negative woman married to an Rh-positive husband has one chance in 143 of being immunized during the first pregnancy, one chance in 14 during the second and third, one in 12 during the fourth, and one in eight during the fifth.

References.

- ARNOLD, B. J., WALSH, R. J., and HERZBERG, R. (1951), "A Study of the Significance of Rh Antibody Titration during Pregnancy", *M. J. AUSTRALIA*, 1: 301.
- BREWSTER, H. F. (1949), in "Blood Transfusion", by Keynes, G., Wright, Bristol, 211.
- LEVINE, P., and WALLER, R. K. (1946), "Erythroblastosis Fetalis in First-Born; Prevention of its Most Severe Forms", *Blood*, 1: 143.
- MOLLISON, P. L. (1951), "Blood Transfusion in Clinical Medicine", Blackwell, Oxford.
- PICKLES, M. M. (1949), "Hæmolytic Disease of the Newborn", Blackwell, Oxford.
- RACE, R. R., and SANGER, R. (1950), "Blood Groups in Man", Blackwell, Oxford.
- SACHS, M. S., KUHN, W. J., and JAHN, E. F. (1947), "Studies in Rh-Isosensitization in Pregnancy", *Am. J. Obst. & Gynec.*, 54: 400.

Reports of Cases.

EAR COMPLICATIONS ASSOCIATED WITH SPEAR FISHING.

By D. G. PERRETT,
Newcastle.

WITHIN the last twelve days I have been consulted by two spear fishermen with interesting ear conditions, which occurred whilst they were following their sport.

Case I.

A, aged fifteen years, stated that some months previously he had dived to a depth of seven feet and suddenly felt

severe bilateral earache accompanied by tinnitus in each ear. He denied having a cold or sore throat at that time. He consulted a doctor, who told him that he had sand in his ears, which were accordingly syringed, but with no relief. The earache disappeared, but the tinnitus had persisted. Further investigation revealed that he had been a mouth-breather for years and that he was subject to frequent colds.

Examination of the patient revealed a mild degree of deflection of his septum to the left, enlarged infected tonsils, and a large pad of adenoids; both tympanic membranes were yellow in colour, and a fluid level was detected up to the umbo in the right ear, whilst a smaller amount of fluid was present in the left ear. This was a case of concussion to the cochlea complicated by catarrhal otitis with effusions. No audiographic examination was made.

Case II.

B, aged eighteen years, stated that two months earlier he had descended to a depth of 35 feet and felt a sudden ringing in the left ear accompanied by vertigo, which rapidly passed off when he came to the surface. The tinnitus was still present. Again there was no history of a cold or sore throat.

On examination of the patient, his nose was normal, the tonsils had been removed, and no adenoids were present. The right tympanic membrane was normal. The left tympanic membrane was faintly pink, owing to dilated vessels, and freely movable; no fluid level or bubbles were detected. Hearing tests gave the following results: Weber central, right ear; air conduction was greater than bone conduction, and a whisper was easily heard at over twenty feet; left ear: air conduction was greater than bone conduction, and a whisper was partially heard at twenty feet (unfortunately owing to mechanical trouble). No audiographic examination was made. This represents a case of concussion to the cochlea and labyrinth.

Comment.

An interesting point is that in neither case was the patient wearing ear plugs or any form of breathing apparatus.

Several conclusions seem to be apparent from these two cases.

1. The depth to which the swimmer goes, with the subsequent increase in pressure upon the tympanic membrane from the outside, not compensated by corresponding pressure on the inside, is very important; this is shown by the severity of the second patient's symptoms—that is, the vertigo. This patient assured me that the spear fisherman's usual custom is to keep on blowing air out of his mouth when at depths. This to me seems a fallacious custom, as it must decrease the pressure in the middle ear.

2. The state of the Eustachian tubes is very important, for in Case I, in which there was a long history of mouth-breathing and frequent colds along with the enlarged adenoids, it is reasonable to presume that the patient had a degree of Eustachian infection. This Eustachian trouble, I believe, was responsible for the effusion into his middle ears and the accompanying earache—a grosser clinical picture, although the depth to which he descended was only seven feet.

3. It is advisable to forbid spear fishing to any patient who has Eustachian catarrh or nasopharyngitis until such a condition has been treated.

4. Protective ear pads and/or breathing apparatus are essential for those with normal post-nasal spaces and Eustachian tubes.

Conclusion.

In conclusion, it appears that as spear fishing is an ever-increasing sport, its followers and future converts would be wise to have a complete nasal, post-nasal and aural examination prior to further indulgence in it, if they wish to avoid contracting what may be termed "aqua-otitis".

A CASE OF UNUSUAL UTERINE RUPTURE.

By B. J. SCANLAN, M.B., B.S.,

Goondiwindi Hospital, Goondiwindi, Queensland.

THE reporting of this case seems warranted because of the unusual size and shape of the uterine rupture and because of the obscure aetiology.

Mrs. X, aged nineteen years, a *primipara*, was admitted to hospital on March 29, 1954, with the following history. The last menstrual period had occurred on June 7, 1953. Her history had been uneventful until she was seven months pregnant, when she attended the out-patient department with the story that she had had ten days' constipation and three days' anuria. On examination of the patient, the fetal heart sounds were normal and the fetus was presenting by the vertex in the left occipito-anterior position. The blood pressure was 130 millimetres of mercury, systolic, and 80 millimetres, diastolic. There was no distension of the bladder, and a catheter was passed, through which two ounces of concentrated but otherwise normal urine were withdrawn.

The patient was admitted to hospital and treated with copious fluids and a potassium citrate mixture; an enema was given. This produced a constipated result. After eight hours she passed six ounces of urine, which was chemically and microscopically normal. She then continued to pass normal amounts of normal urine. She was discharged from hospital after ten days, during which time she was asymptomatic, and had no further trouble (except constipation) until March 29, 1954. On this day she reported to the out-patient department for a routine examination; the fetal heart sounds were normal and the fetus was presenting by the vertex in the left occipito-anterior position, but there was slight overlap. The patient's blood pressure was 130 millimetres of mercury, systolic, and 80 millimetres, diastolic.

The patient was admitted to hospital, and during the next two weeks medical induction of labour (bath, enema, quinine sulphate, and "Pitocin" in doses of 0.25 millilitre every half-hour for four doses) was attempted on four occasions. After this period of two weeks the overlap was pronounced, but it was still thought that the fetal head would pass. The membranes were ruptured under direct vision with a volsellum. There were no contractions for the next thirty hours. At the end of that time the draining liquor became stained with meconium, and the fetal heart sounds increased in rate and became slightly irregular.

Cesarean section was decided on. During induction of anaesthesia, despite the fact that she had not eaten for six hours, the patient vomited violently and her airway became obstructed. Just at his crucial moment the sucker fused. The vomitus was dark-brownish fluid material. The patient became very cyanosed and for a short time it was thought that she would die before the operation commenced.

After about fifteen minutes operation was continued after the fetal heart sounds had again been checked. The operation proceeded normally until the peritoneum was about to be incised, when it was found that there was a hemoperitoneum. About a pint of blood-stained material was aspirated from the peritoneal cavity, and then could be seen a round perforation about a quarter of an inch in diameter. It was situated high on the anterior surface of the uterus, and blood and meconium were still flowing from it. Because of the size and shape of the hole, it was decided to abandon the proposed lower segment operation and perform the classical operation through the perforation. The baby was alive on delivery, but died about half an hour later.

Macroscopic examination of the muscle through which the perforation had occurred showed it to be indistinguishable from the remainder of the uterine musculature which was exposed in the incision.

While the peritoneal cavity was being cleaned the stomach was examined because of the prolific vomiting, and was found to be the size of a football.

Wangensteen's suction was employed, and the patient was given fluids intravenously and chemotherapy. She made an uneventful recovery and was discharged from hospital on April 28, 1954.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Primer of Allergy: A Guidebook for Those Who Must Find Their Way Through the Mazes of This Strange and Tantalizing State", by Warren T. Vaughan, M.S., M.D., revised by J. Harvey Black, M.D.; Fourth Edition; 1954. St. Louis: The C. V. Mosby Company. Melbourne: W. Ramsay (Surgical), Limited. 8" x 5½", pp. 192, with 23 illustrations. Price: 44s. 9d.

The third edition appeared in 1950.

"Legal Medicine", edited by R. B. H. Gradwohl, M.D., Sc.D., F.A.P.H.A., Commander, M.C., U.S.N.R. (Retired); 1954. St. Louis: The C. V. Mosby Company. Melbourne: W. Ramsay (Surgical), Limited. 10" x 7", pp. 1110, with 222 illustrations. Price: £10 10s.

Intended for medical and law students, members of the medical and legal professions, jurists, law enforcement officers, pathologists and toxicologists.

"Urological Practice", by Roger W. Barnes, B.A., M.S., M.D., F.A.C.S., F.I.C.S., and Henry L. Hadley, B.A., M.D., D.N.B., with contributions by six other authors; 1954. St. Louis: The C. V. Mosby Company. Melbourne: W. Ramsay (Surgical), Limited. 10" x 7", pp. 494, with 166 illustrations. Price: £6 11s. 3d.

The book has been "written for general practitioners to use as a quick reference aid in the diagnosis and treatment of common urogenital diseases".

"Pediatric Clinics of North America: Symposium on Clinical Advances"; 1954. Philadelphia and London: W. B. Saunders Company. Melbourne: W. Ramsay (Surgical), Limited. 9" x 6", pp. 238, with 36 illustrations. Price: £6 per annum.

This volume (it is published every quarter) comprises a symposium on clinical advances in pediatrics. There are 15 chapters by 18 authors.

"Recent Advances in Endocrinology (Cameron)", by P. M. F. Bishop, D.M. (Oxon.), M.R.C.P. (Lond.); Seventh Edition; 1954. London: J. and A. Churchill, Limited. 8" x 5½", pp. 356, with 34 illustrations. Price: 30s.

The sixth edition was published in 1947.

"Lectures on General Pathology: Delivered at the Sir William Dunn School of Pathology, University of Oxford", edited by Sir Howard Florey; 1954. Melbourne: Melbourne University Press. 9½" x 6½", pp. 748, with 344 illustrations and four colour plates. Price: 84s.

There are ten contributors.

"Basic Anatomy", by G. A. G. Mitchell, O.B.E., T.D., M.B., Ch.M., D.Sc., and E. L. Patterson, M.D., Ch.B., B.Sc.; 1954. Edinburgh and London: E. and S. Livingstone, Limited. 10" x 7", pp. 446, with 286 illustrations. Price: 45s.

Based on an introductory course of lectures for medical and dental students.

"Leibniz and Philosophical Analysis", by R. M. Yost, Junior; University of California Publications in Philosophy, Volume XXVII, 1954. Berkeley and Los Angeles: University of California Press. 9½" x 6½", pp. 220. Price: \$5.00.

"In recent years philosophers have developed techniques for clarifying ideas; their application to fundamental ideas has been called 'philosophical analysis'." The author discusses the work of Leibniz from this point of view.

"Insanity, Art and Culture", by Francis Reitman, M.D., D.P.M.; 1954. Bristol: John Wright and Sons, Limited. 8½" x 5½", pp. 112, with seven illustrations. Price: 12s. 6d.

Intended for the general public as well as for the psychiatrist.

The Medical Journal of Australia

SATURDAY, OCTOBER 30, 1954.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

CRIMINAL RESPONSIBILITY.

THE meeting of the New South Wales Branch of the British Medical Association reported in this issue is important for two reasons. In the first place it dealt with a subject of great importance which interests most medical men, and secondly, it was the meeting ground—unfortunately a rare event—between members of the medical and legal professions. While the attention of readers is directed especially to Dr. McGeorge's paper and to the discussion, their attention should also be directed to the twenty-eighth Maudsley Lecture entitled "Medicine and the Law", by the Right Honourable Earl Jowitt.¹ In the opening part of his address, Earl Jowitt referred to his early experiences in the courts, when doctors or veterinary surgeons gave conflicting evidence. He was convinced that neither the doctor nor the veterinary surgeon was consciously trying to deceive the court by telling untruths. It was rather, he thought, due to the perfectly natural human tendency to take sides. The doctor or the veterinary surgeon would want to do the best he could for his client whilst sticking to the truth, and approaching his problem from that angle he would honestly come to the conclusion indicated by him. The tendency to take sides was, Earl Jowitt thought, ineradicable. It was found in the ordinary affairs of everyday life. The passenger in a motor-car involved in an accident inevitably tended to take sides with his driver, just as the doctor tended to take the side of his patient. The tendency could possibly be avoided if the witness was completely independent and did not become more involved with one side than with the other. From this Earl Jowitt went on to discuss his experiences as a member of the Royal Commission on Lunacy. He had

expected to come across instances of harsh or perhaps brutal treatment in mental hospitals. However, he had found no single instance supporting the theory which he had entertained. He thought that without exception the medical superintendents carried out their duties in a humane and considerate way. Undoubtedly those in charge were sometimes not unnaturally hesitant about allowing a discharge for fear that the patient should do himself some injury, in which case, had there been an inquest, some coroner might have expressed his disapproval of the conduct of the superintendent in allowing such a patient his liberty. Developing his subject, Earl Jowitt said that when he became Lord Chancellor he was naturally much more closely concerned with the administration of the criminal law. He said that if he were asked about his general impressions of the prisons he had visited, he would say that the weakness of the system inevitably consisted in treating prisoners as one class, whereas, of course, each prisoner in an ideal system required his own individual treatment. Earl Jowitt then dealt more particularly with the main topic of his address, "Medicine and the Law". For this purpose he assumed that the death penalty was to continue. If it was decided to abolish the death penalty, many of the problems that arose would, of course, disappear. So long as the death penalty continued, there would be cases in which the person accused based his defence solely on insanity. It was this which gave rise to the main trouble that existed between the lawyers and the doctors. He thought it was a fact that most psychiatrists thought that they were treated by lawyers without much respect. They felt, too, that counsel and sometimes Her Majesty's judges had not a scientific approach to these problems. Judges had sometimes admitted to him that they did not derive as much help as they would have expected from the evidence of psychiatrists. Earl Jowitt did not think that either the lawyers or the psychiatrists were to blame for this undoubted state of affairs. The fault perhaps lay rather in the system than in individuals; yet it was by no means easy to see how the system could be altered. To those who asserted that lawyers or even judges lacked the scientific approach, he would reply that in all cases science in the person of medical witnesses spoke with an uncertain voice. There was generally one expert who said that the accused did have the degree of responsibility which the law required, and there was another equally eminent expert who said that he did not. It was a fallacy to blame either the lawyers or the judges for not attaching sufficient importance to the evidence of these witnesses when in fact the evidence was about equal on both sides. This brings us back to Earl Jowitt's earlier remark about the natural tendency of human beings to take sides. Earl Jowitt welcomed the proposal made in the Royal Commission's report in England, that every prisoner charged with murder should be examined by two doctors, one an experienced psychiatrist who was not a member of the Prison Medical Service, and the other an experienced member of that service. Perhaps it would not be too much to suggest that if the person examined had a family doctor who had known him from his earliest years upwards, this doctor might be present when the expert psychiatrists were making their examination in order to answer any questions that might be referred to him by them.

¹ J. Ment. Sc., April, 1954.

The M'Naghten rules, of course, come under discussion. They have been summarized briefly by Glaiser as follows: " . . . the M'Naghten Rule is that, to establish a defence on the grounds of insanity, it must be clearly proved that at the time of committing the act the accused was labouring under such a defect of reason from disease of the mind that he did not know the nature and quality of his act, or if he did, that he was not aware he was doing wrong." Earl Jowitt insisted (as Dr. McGeorge states in his paper) that it could not be too often remembered that these rules were not a test of sanity and had not been formulated as such. They were a test of responsibility in law for acts done. He agreed that they were illogical, and that the test they provided was frequently stretched and might therefore be said to be no test at all. Who, he asked, could measure responsibility by an elastic yardstick? In practice the M'Naghten rules had worked well, and the attack on them seemed to Earl Jowitt to be based on their lack of logic and not on the fact that they had worked badly. The British people differed from the Latin races in that the latter judged any rule or institution from the point of view of whether it was illogical. The British took the point of view whether the rule or institution worked well. This seems a reasonable attitude; but we must remember that suggestions have often been made that the M'Naghten rules should be modified. Dr. McGeorge, in his reply, referred to the British Medical Association's suggestion to the Commission on Capital Punishment in England that loss of emotional control should be included in the M'Naghten conception of irresponsibility at law. The present position in Australia in relation to the defence of insanity in a criminal trial has been set out in *The Australian Law Journal*, Volume X, 1936, page 3, in an article by John V. Barry, entitled "The Sodeman Case and the Defence of Insanity".

(a) The Crown must satisfy the jury beyond all reasonable doubt of the commission of the act charged, and subject to (b) of the presence of *mens rea*.

(b) The prisoner is presumed, until he establishes the contrary, to have been sane at the time of the commission of the act in question.

(c) The burden of establishing insanity, within the meaning of the M'Naghten formula, is similar to that resting upon a party who has to prove an issue in a civil action, and may be discharged by showing a balance of probabilities in favour of the defence.

(d) While the door is not entirely closed to an interpretation of the M'Naghten rules which would include irresistible impulse as a ground of irresponsibility, it is unlikely that such a ground will be admitted until the English Court of Criminal Appeal alters its attitude, or a higher English tribunal pronounces in favour of it. [Apparently some exception exists in regard to Queensland, for a reference to Criminal Code, 1899, S.27 is made.]

(e) Irresistible impulse, while not a defence of itself, may be one manifestation of mental disease and may have the effect of destroying or preventing knowledge of the nature and quality of the act done, or knowledge that the act is wrong.

Attention is also drawn to the remarks of Dr. D. W. H. Arnott in the discussion. He stated that the M'Naghten rules had for the first time been widened in that they accepted that a person might know that an act was legally wrong, yet not know that it was morally wrong. His remarks on the statements of Mr. Justice Sir James Fitzjames Stephen are also of great interest.

¹ John Glaiser, "Medical Jurisprudence and Toxicology", Ninth Edition, 1950, page 484.

² Barry, in his statement, made a reservation in regard to Wollington's case, reported in 1935.

The question of "irresistible impulse" cannot fail to interest medical practitioners. In *The Australian Law Journal* of August 15, 1936, there appears an unsigned article entitled "Irresistible Impulse". Here it is stated that the recent case of R. v. Sodeman has revived once again the theory of irresistible impulse (due to mental disease) and also the contention that such impulses should be accorded explicit recognition by the law as an independent defence. The author points out that neither the theory nor the contention is new, and that both are at least as old as M'Naghten's case. The author goes on to remark that it is more usual to accept the view they represent, and to regret its failure to become established in law, than it is to inquire into the reasons which may explain why the long-standing agitation for its adoption has been unsuccessful. Medical practitioners will naturally ask how it can possibly be determined whether an impulse is irresistible or not. This does not mean that there is no such thing as an irresistible impulse. It should be recalled, as stated in *The Australian Law Journal* article of August 15, 1936, that at the conclusion of the Atkin Committee's report in England, published in 1923, the following words appear: "It was established to our satisfaction that there are cases of mental disorder where the impulse to do a criminal act recurs with increasing force until it is in fact irresistible." The Court of Criminal Appeal in R. v. Kopsch, 1925, is reported as stating: "The fantastic theory of uncontrollable impulse is not . . . part of the criminal law. The jury may well have thought that the defence of insanity in this case . . . was the merest nonsense." The author of the article in question points out that the doctrine of irresistible impulse has received varying degrees of support at different times from judges in their judgements. He states that the reasons for the law's conservatism in the matter are not far to seek. He divides them into medical, psychological and legal reasons. First of all he points out that there is the arresting fact that many medical and other authorities have expressed serious doubts whether there is such a phenomenon at all as irresistible impulse. In the second place he explains that psychological investigation of the question—how to distinguish between an uncontrollable and a merely uncontrolled act—yields equally inconclusive results. In the third place, all these doubts and difficulties assume a peculiar gravity when it is remembered that criminal justice depends upon trial by jury. The author adds that it is well to remember that for such cases of alleged uncontrollable impulse in which the accused escaped conviction at the hands of judge and jury, there remains in proper cases the prerogative of mercy, in the exercise of which the report of the trial judge and in some instances medical opinion receive consideration by authorities who are untrammelled by legal rules. His conclusion is that "on the whole it is unlikely that the legislature will see fit to extend the present principle of law, which accords to insane impulse this recognition, that if mental disease results in apparent incapacity to control conduct, that is evidence, and cogent evidence of the existence of one or other of the exemptive defects set up by M'Naghten's Case. The probability of mental disorder or disease thus affecting the intellectual as well as the volitional faculties is, of course, matter for a proper direction by the judge in particular cases. Judges are well aware of it, and juries

accord it ready recognition: it is not suffered by the law to remain in the realm of speculation". The M'Naghten principle, when thus interpreted and applied, appears to the author to be not unreasonable and to leave little scope for the miscarriage of justice. This article produced a reply in *The Australian Law Journal* of September 15, 1936, from John V. Barry. Barry points out that the fact that irresistible impulse does not furnish a working test of criminal responsibilities which juries can understand and apply, is no justification for not recognizing the defence. In any event, however, it must be remembered that the law does permit evidence of irresistible impulse to be given to bring a case within the M'Naghten rules. In the present state of the law, the burden of establishing the plea is upon the defence, and if the defence fails to tender satisfactory evidence of an uncontrollable, as opposed to an uncontrolled, impulse, Barry states that the plea must fail. A jury could, in his opinion, be no worse off with a direction upon irresistible impulse than it is when a conscientious judge undertakes to expound to it what is meant by the word "know" in the M'Naghten formula. He thinks that the solution of the problem will be found by leaving to the jury only the question of whether or not the prisoner committed the act charged, and in the event of a verdict of guilty of the act, leaving the question of his disposal to a tribunal of legal experts and psychiatrists. He ends with a statement from America by Mr. Justice Cardozo: "If insanity is not to be a defence, let us say so frankly and even brutally, but let us not mock ourselves with a definition that palters with reality. Such a method is neither good morals, nor good science, nor good law."

Finally, reference should be made to attempts to apply electroencephalographic evidence to the interpretation of the M'Naghten rules. This is discussed by Denis Hill in "Modern Trends in Forensic Medicine", edited by Keith Simpson. He points out that electroencephalographic evidence can give no answer to the question of criminal responsibility. Electroencephalographic data do not supply any new evidence suggesting that there exists a class of criminal whose crimes are committed under rules of altered mental functioning of the type for which the M'Naghten rules were framed. He regards it as important that the limited conclusions which may be reached from study of the criminal by electroencephalography should not be stretched or distorted in an endeavour to accommodate them to the forensic needs of the individual case. "The contribution which electroencephalography might aspire to make is not to assist the prisoner through the narrow M'Naghten gate, but to throw some light upon the physiological constitution which is of relevance to the study of his behaviour and his adaptive capacity within a physical and psychological environment." He points out, however, that the frontiers of electroencephalography are, like those of all physical and biological science, continually expanding. The conclusions which may reasonably be drawn from the present state of knowledge in this new subject, he adds, may very well appear quite inadequate in a few years' time. In the present field of its application to forensic problems "only a tentative and critical approach will be tolerated and indeed the data justify little else".

Current Comment.

AIR DISINFECTION WITH ULTRA-VIOLET IRRADIATION.

THE use of ultra-violet irradiation as an air disinfectant has been the subject of a good deal of controversy in the past. While certain theoretical arguments have been brought forward in its favour, its practical value has not been demonstrated by any means conclusively. Its use is based on the concept that pathogenic organisms from the mouth and throat are conveyed from person to person in the form of minute droplets, which were called "droplet nuclei" by W. F. Wells, who brought this idea into prominence in 1933. These droplet nuclei are small enough to remain suspended in the air for several minutes and to be carried on air currents for a considerable distance. Methods of aerial disinfection that can kill microbes freshly suspended in droplet nuclei might then reasonably be expected to reduce the spread of respiratory tract infections, and for this purpose Wells proposed the use of ultra-violet irradiation. The conclusions of individual workers who have tested this method as a means of reducing the incidence of diseases in schools, barracks and similar places have been conflicting, but the importance of finding some means of controlling common infectious diseases warrants persistence with the investigations until a clear conclusion is reached.

A report recently issued by the Air Hygiene Committee of the Medical Research Council of the Privy Council describes an inquiry planned in 1946 to test in Britain the effectiveness of upper air irradiation by means of ultra-violet lamps as a means of preventing the spread of specific infections among school children in an urban community. It was also aimed to measure, as far as possible, the incidence and the rate of spread through the schools of all sorts of illness. The investigation was carried out in three primary schools in the Borough of Southall, a suburban area of Greater London. In each school, all the classrooms and assembly halls of the infant and junior departments were equipped with ultra-violet lamps to irradiate the air in the upper part of the room. Three similar schools were observed as non-irradiated controls. The child population of the irradiated school was about 1550, and that of the control schools about 1860. Observations were continued for a period of three years, the irradiation being maintained during school hours throughout the whole period. Records were kept of all the absences and reasons for absence of any child who was away from school for one whole day or more. In general, reliance was placed upon parents' diagnoses, but in any case of doubt the home was visited for further inquiry. Daily visits were made to a random sample of classrooms while they were occupied in the ordinary way, for the determination of the temperature, humidity, ventilation rate and bacterial content of the air. Measurements were also made at intervals of the ultra-violet intensity in the rooms.

The irradiation apparently produced no ill effects among either children or teachers. It was found that, although they differed somewhat in structure, the irradiated schools did not, on the average, differ from the control schools in temperature or humidity and they were not materially different in size of class or area per child. Their average ventilation rate was slightly greater than that in the control schools. During the investigation, it was found that the general bacterial count in the air was about 16% lower in the irradiated schools than in the control schools. The count of *Streptococcus salivarius*, which was studied as an index of the degree of mouth pollution of the air, was reduced by as much as 70%. The count of hemolytic streptococci, made over a period of about six months, was reduced by about 80%. Examination of the total sickness absence failed to reveal any appreciable effect in either the infant or the junior departments. Examination of individual causes of absence, however, suggested that the irradiation probably reduced the number of absences due

to certain diseases by amounts varying from 15% to 45%. The diseases concerned were mumps, chicken pox, asthma, gastritis and gastro-enteritis, "gastric flu", scarlet fever, acute pharyngitis and tonsillitis, *otitis media* and earache. Also, secondary attack-rates following single case introductions of measles, mumps and chicken pox were apparently lower in the irradiated schools. It is pointed out in the report that the absences due to the diseases mentioned which seemed to be affected by the irradiation form only a small part of the total sickness absence. Thus, the effect of the irradiation on total sickness absence is small, and the results would not appear to justify wide use of irradiation as a hygienic measure for the control of infection in primary urban day schools.

A consideration of the results in this report in conjunction with those of other investigators suggests the likelihood that ultra-violet irradiation of the air in the upper part of school classrooms exerts an effect on the transmission of measles, but this does not result in any appreciable reduction of the total attack rate. It has probably a similar effect on the transmission of mumps and chicken pox, with some reduction in total incidence. There also appears to have been a reduction in the incidence of scarlet fever, sore throats, *otitis media* and earache, of some diseases of the alimentary tract, such as gastritis, and of asthma. None of the investigations recorded, however, has suggested that irradiation, as it has been applied, has had any effect on the large group of ill-defined upper respiratory infections such as the common cold, and any effect on the absence rate due to all causes is trivial. As is pointed out in the report, a great deal remains to be learnt about the possible modes of spread of the supposedly "airborne" diseases, and the value of field trials such as those described in the report lies not only in providing *ad hoc* tests of specific aerial disinfectants, but as much, if not more, in yielding information about the epidemiology of disease. Much more work along similar lines would be justified.

LUMBAR PUNCTURE HEADACHE.

LUMBAR PUNCTURE HEADACHE is an unpleasant problem that is not viewed with equanimity by either the doctor or the patient who has previous experience of it. Various methods have been suggested to eliminate it or to reduce its incidence. Confinement of the patient to bed is of debatable value, and in any case is not always practicable. One preventive measure suggested is the use of a very fine needle to reduce the size of the hole made in the theca. The mechanism causing lumbar puncture headache is not fully understood, but, as Eva Gallagher and C. G. H. Campbell have pointed out,¹ there is evidence that it is produced by leakage of cerebro-spinal fluid from the wound in the theca after the needle has been withdrawn. If the leak persists, the cerebro-spinal fluid may be so depleted that it cannot act as a cushion for the base of the brain, and sensitive vascular and supporting structures may be stretched. The small quantity of cerebro-spinal fluid removed for diagnostic purposes is not in itself enough to produce this effect.

A development of the idea of using a very fine needle is that of the double needle, sometimes known as the Dattner needle. The principle of this is that a spinal needle of about the usual size, or a little smaller, contains within it a very slender and slightly longer needle. With the inner needle withdrawn so that the bevels of the two needles are in the same plane, lumbar puncture is performed in the usual way until the dura is reached. The inner needle is then advanced so that it alone pierces the theca and enters the subarachnoid space. The cerebro-spinal fluid drips out slowly. If, during the operation, the outer needle is inadvertently pushed through the dura, the inner needle is removed, and the effect is the same as if an ordinary single needle had been used. There are certain difficulties about

its use, and for some patients it may be necessary to use a single needle in the interests of speed and simplicity.

In an attempt to compare the use of the Dattner needle with a single needle, Gallagher and Campbell have examined the results of lumbar puncture carried out on 258 patients, of whom 168 were male and 90 female. On 127 of these 258 subjects the double needle was used, and on 131 the single needle was used. All the punctures were carried out in an out-patient department, and the patients were allowed to dress and leave the clinic as soon as the operation was completed. They were advised to return at once to their usual occupations, unless these were particularly exacting. Some patients, however, took the afternoon off. All were asked to return to the clinic within a few days, and were then asked whether they had experienced any unpleasant symptoms after the lumbar puncture, and, if so, their nature, severity and duration, and what were their activities on leaving the clinic. The results are not easy to interpret, but it appears that the incidence of headache was significantly reduced when the double needle was used. The reduction was not as dramatic as has been reported by some other workers, and it was notably much less in the female subjects than in the male. Indeed, the reduction amongst the female subjects is of doubtful significance, although the reason for this is obscure. The over-all results indicate that the use of the double needle reduces the incidence of lumbar puncture headache, but it is difficult to estimate the extent of this reduction. As Gallagher and Campbell point out, headache must still be regarded as a common complication of lumbar puncture when the double needle is used. It does not appear practicable to abandon the use of the single needle, for in many cases ease and speed of operation are essential considerations and the single needle is then the instrument of choice.

ISONIAZID AND PAS IN CHRONIC PULMONARY TUBERCULOSIS.

THERE is no question that real advances have been made in the treatment of tuberculosis by the recent introduction of various chemotherapeutic agents, but a series of setbacks have made most investigators cautious about making final claims. Isoniazid is a case in point. Early results from its use were encouraging, to say the least. Then disappointing relapses occurred in patients, even while they were still under treatment. This difficulty has been overcome a good deal by giving isoniazid and streptomycin together, but even here there are disadvantages. Another combination that has been reported on favourably is that of isoniazid and PAS. In this regard, attention should be paid to a recent report by C. L. Joiner, K. S. MacLean, J. D. Carroll, K. Marsh, Patrick Collard and Robert Knox, of the Departments of Medicine and Bacteriology in Guy's Hospital, London.¹ These investigators compared the therapeutic effect of continuous isoniazid and PAS therapy with that of rotating pairs of isoniazid, PAS and streptomycin in two comparable groups of 13 and 14 patients respectively. All the patients had chronic fibro-caseous pulmonary tuberculosis, and all were treated for twenty-four weeks. Initial improvement followed by clinical and bacteriological relapse was seen in association with continuous isoniazid and PAS therapy and was associated with the emergence of strains of organisms resistant to both drugs. On the other hand, progressive improvement was met with in association with rotating pairs of drugs.

An important aspect of this study is the comparatively long period of trial. It is pointed out that in only one large series of those reported in which a favourable response was claimed were the observations extended beyond twelve weeks. The report concerned dealt with hospital patients who had never had chemotherapy and included no mention of other treatment, such as bed rest or collapse therapy. Moreover, no group of control patients

¹ *Lancet*, October 2, 1954.

¹ *Lancet*, October 2, 1954.

was reported. Of the patients studied, 61.9% in one group and 62.3% in another showed marked or moderate improvement radiologically at the end of twenty weeks. The inference drawn by Joiner and his colleagues is that in this other report the subjects were in the early stages of the disease and the beneficial effect of general measures was likely to be maximal. In the other two large series reported, results were assessed after only twelve weeks. Another point stressed is that all the patients in the present series belonged to the group with chronic fibrocaseous pulmonary tuberculosis, a group specifically excluded from the important Medical Research Council report issued last year. Joiner *et alii* state that it would be unwise to argue that the treatment would necessarily be ineffective in other types of pulmonary tuberculosis.

Summing up the position, Joiner *et alii* point out that it has become increasingly obvious in the last two years that courses of chemotherapy for tuberculosis must be very long. A follow-up study of patients with chronic fibrocaseous pulmonary tuberculosis whose sputum had been rendered free of organisms after various courses of chemotherapy has shown that even with six months' continuous treatment relapse rates are as high as 75%. It is therefore important to select a combination of drugs that continues to be effective for as long as possible. The results quoted in this report after twenty-four weeks' treatment suggest that isoniazid and PAS in the dosage used do not provide such a combination.

THE LETTERS OF ANTONI VAN LEEUWENHOEK.

THE ROYAL DUTCH ACADEMY OF SCIENCE in conjunction with the leading Dutch medical association resolved in 1931 to prepare a complete and well edited edition of the many letters of Leeuwenhoek (pronounced Lay-wen-hook with a slight stress on the first syllable). Many letters were sent to the English Royal Society between 1673 and 1723, but many also were addressed to men of science living at the time in various countries. This suggestion had already been forcibly put forward in 1923, the bicentenary of Leeuwenhoek's death. Four volumes of quarto size have been published, a fifth will soon appear, whilst Volume VI is well in hand. The publishers are Swets and Zeitlinger, of Amsterdam. What has been called a "keep-sake", with the title "The Discovery of Unicellular Life", has been issued by the editors of *Chronica Botanica* on the occasion of the dedication of the Institute of Microbiology, Rutgers University, New Brunswick, New Jersey. This brochure gives two examples of Leeuwenhoek's letters as these appear in the complete edition. Judged by this sample the work of editing has been excellently carried out. Translations into English from the original Dutch or Latin are given, but most valuable are the many efforts to repeat Leeuwenhoek's experiments and so describe in modern terminology and with modern illustrations the organisms which Leeuwenhoek observed.

Leeuwenhoek's contributions to biology were truly immense; he was the discoverer of unicellular life, both plant and animal, and April 24, 1676, may be taken, thanks to him, as the birthday of bacteriology. He was the first great opponent of spontaneous generation in organisms such as weevils and maggots, as well as more lowly forms, and started a controversy which raged until the time of Pasteur and Tyndall. There are some common features in the life and labours of Leeuwenhoek as compared with those of his contemporary, the Englishman Robert Hooke; each pursued researches without much planning, and each used the microscope, but Leeuwenhoek was a far greater microscopist than Hooke, though it must be admitted that he did not possess Hooke's inventive talents or his ability to make contributions to pure physics. Nevertheless, the world owes more to the Dutchman than to the Englishman. So many of Leeuwenhoek's discoveries are commonplaces of today that we are apt to forget how revolutionary they appeared to his contemporaries; thus he showed that the red blood corpuscles were circular in man but oval in frogs

and fishes; his histological investigations of muscle, teeth and plant stems were new and admirable. He is often regarded as being the first to see and describe spermatozoa, but the credit should go to a medical student, Stephen Hamm. Most important of all was the opening of a new world in biology by his many discoveries of unicellular creatures and lowly forms of metazoa. The government and people of Holland may well be proud of this great pioneer, and this effort to present the world of learning with Leeuwenhoek's complete letters (his form of publication) will arouse our admiration.

TOBACCO, NICOTINE AND THE ELECTRO-CARDIOGRAM.

TOBACCO SMOKING has moved very much into the headlines of recent years, particularly in relation to carcinoma of the lung, but a question of much longer standing is its effect on the cardio-vascular system. Opinions on the subject are divided, but it has been suggested that tobacco produces a deleterious effect on the heart, chiefly in two ways: first, by precipitating coronary spasm and *angina pectoris*; second, by predisposing to arteriosclerosis, especially coronary sclerosis. The greatly conflicting opinions on the subject are probably due to the inadequate data available, so that those interested in the subject will welcome a careful clinical and experimental investigation reported by Bertil von Ahn.¹ The investigation was aimed at determining the acute effect of tobacco smoking and nicotine on the electrocardiogram, especially during induced hypoxia. Von Ahn found that tobacco smoking or injection of nicotine during hypoxia resulted in increase in heart rate, increase in the amplitude of the P waves, flattening of the T waves and slight depression of the S-T segments. These electrocardiographic changes, he considers, are due chiefly to increased sympathetic tone, and he cites the following facts to support this view. First, dihydroergotamine impedes the effect of nicotine on the electrocardiogram; on the other hand, heavy smoking can change a vagotonic electrocardiogram in a sympathetico-tonic direction. Second, the administration of atropine may bring about approximately the same degree of flattening of the T waves as nicotine. Third, there is practically no flattening of T waves or depression of S-T segments after elimination of the heart rate effect due to smoking or injection of nicotine. Von Ahn also found that physical work during hypoxia led to greater flattening of the T waves and depression of the S-T segments than did nicotine under the same conditions. In certain cases, heavy smoking or injection of nicotine resulted in flattening of the T waves without a simultaneous increase in the heart rate. This effect is considered probably to be due to increased adrenal secretion.

It appears, in summary, that tobacco smoking can provoke two distinct types of cardiac pain. The first is described as "tobacco angina", a condition relatively common in heavy smokers, both healthy subjects and cardiac patients. The pains do not develop in immediate association with smoking, but as a rule only after one or several hours. They often are of long duration. The aetiology of these pains is unknown, but, according to von Ahn, there is no evidence to show that they are of coronary origin. The second type of pain is *angina pectoris* precipitated by tobacco smoking. Von Ahn states that this rare syndrome occurs only in patients with coronary disease and that it always develops in immediate relation to tobacco smoking. The pains are clearly of coronary origin and are associated with pathological electrocardiographic changes. This syndrome is quite different from, and has a much more severe prognosis than, true tobacco angina, but the two conditions can be difficult to distinguish. This fact makes plain, at least in part, why tobacco smoking has been regarded as playing an important part in the aetiology of *angina pectoris*.

¹ *Acta med. scandinav.*, Supplement 292, 1954.

Abstracts from Medical Literature.

PÆDIATRICS.

Uveitis in Children.

SAMUEL KIMURA *et alii* (*Arch. Ophthalm.*, January, 1954) analysed 47 cases of uveitis which occurred in children under the age of sixteen years over a period of five years. Eighteen of these patients had anterior uveitis, and in only six was an aetiological diagnosis or specific disease association determined. The remainder had posterior uveitis, and in ten of these a presumptive diagnosis of toxoplasmosis was made. Of the total number an aetiological diagnosis could be made in only one-third. Aetiological factors were brucellosis, syphilis, sarcoidosis, juvenile rheumatoid arthritis and toxoplasmosis. The extreme rarity of iridocyclitis in children is emphasized, but no explanation is forthcoming.

Cat-Scratch Fever.

C. W. DARSCHNER, G. W. SALMON AND FLORENCE M. HEYS (*J. Pediatrics*, October, 1953) discuss cat-scratch fever and report twelve cases. They state that the clinical picture is one of malaise, low-grade fever and unexplained local lymphadenopathy. The patient does not appear seriously ill, but the size of the involved lymph node or nodes is often quite impressive. A definite history of a cat scratch is not always obtained, but there is always some association with cats. The incubation period appears to be from ten to thirty days. In one volunteer the course of whose condition was followed after intradermal injection of material from the bubo of a patient with proven cat-scratch fever, minimal regional adenopathy began in about eight days, and the glands enlarged progressively, so that twenty days later a large fluctuant central node was present surrounded by smaller nodes. At the height of the lymph node response, a skin papule appeared at the site of the primary inoculation and persisted for several days. The diagnosis is confirmed by a positive skin test result when the patient is tested by the intradermal injection of an antigen prepared by the Frei procedure from the bubo of a known subject of cat-scratch fever.

Erythroblastosis and ABO Incompatibility.

D. Y. HSIA AND S. S. GELLIS (*Pediatrics*, June, 1954) report that 11 patients with ABO incompatibility, compared to seven with Rh incompatibility, were met with in one newborn service over a six-month period. They state that no one test is available which can in every case be diagnostic. The diagnosis is strongly suggested when most of the following criteria are present: (i) jaundice in the first twenty-four hours, (ii) serum bilirubin concentration of 10 milligrammes per 100 millilitres or more within the first twenty-four hours, (iii) major blood group incompatibility between infant and mother, (iv) maternal anti-A or anti-B titre above 1:1024 after neutralization, (v) positive Coombs test result or positive two-stage antiglobulin test result, (vi) spherocytosis, (vii) exclusion of infection and other causes.

Additional evidence may be furnished by the demonstration of free anti-A or anti-B antibodies in the infant's serum, the absence of other antibodies in the mother's or infant's serum, a normal haemoglobin value in the presence of jaundice, reticulocytosis, and elevation of osmotic and mechanical fragility. The prognosis is much better than in cases of Rh incompatibility. The authors treated by exchange transfusion those infants who appeared severely ill and those whose serum bilirubin level exceeded 20 milligrammes per 100 millilitres in the first three days. Eight of their 21 patients were so treated.

Chloramphenicol and Salmonella Enteritis of Infancy.

W. B. MACDONALD, F. FRIDAY AND M. McEACHERN (*Arch. Dis. Childhood*, June, 1954) report a controlled trial, carried out at the Royal Children's Hospital, Melbourne, to determine the efficacy of chloramphenicol on infants suffering from Salmonella enteritis. Fifty-one infants were included in the study, and of these 25 were treated with chloramphenicol in a dosage of 120 milligrammes per kilogram per twenty-four hours for ten days. A similar feeding régime was employed in all cases. Only three infants required intravenous infusion. The mean duration of illness was 19.52 days for treated infants and 18.96 days for the controls. At the time of their discharge from hospital, Salmonella could still be recovered from the stools of 10 treated and 11 control infants. It was concluded that, despite a high degree of sensitivity to chloramphenicol *in vitro*, the growth of Salmonella in the bowel was not significantly affected by the drug, and that no alteration in the course of the disease was effected by its use.

The Survival of Transfused Red Cells in Acute Rheumatic Fever.

J. REINHOLD (*Arch. Dis. Childhood*, June, 1954) has studied eight cases of rheumatic fever, using Dacie and Mollison's modification of the Ashby technique to determine the survival time of transfused red cells. In six control subjects disappearance of donor red cells from the circulation of the recipient occurred at a steady rate with a linear slope of elimination. In the patients with acute rheumatic fever there was an increased rate of disappearance of donor red cells with a curvilinear slope of elimination indicating random destruction unrelated to the normal process of aging. Thus a hemolytic process is at least in part responsible for the anemia of rheumatic fever. A similar latent hemolytic process has been discovered by other workers in related conditions, such as disseminated lupus erythematosus, acute and chronic nephritis, and rheumatoid arthritis.

Intelligence Quotients, Erythroblastosis Fetalis and Exchange Transfusion.

R. DAY AND M. S. HAINES (*Pediatrics*, April, 1954) have produced evidence that kernicterus is not an all or none phenomenon. Earlier they found a lower mean intelligence quotient (-11.3 points) in a series of children recovered from erythroblastosis even when those with detectable nervous system defect had been excluded. They have now compared the results of psychological tests on fully recovered children treated since the introduction of exchange

transfusion with those on their unaffected older siblings. The 68 patients had an average intelligence quotient of 106.51 which was 6.13 less than that found in the controls. The authors state that this apparent improvement in results since the introduction of treatment by exchange transfusion has not unequivocal statistical significance. Depression of the intelligence quotient was significantly related to the degree of jaundice but not to the degree of anaemia.

ORTHOPÆDIC SURGERY.

Insertion of Femoral-Head Prosthesis.

GEORGE H. MARCY AND RICHARD S. FLETCHER (*J. Bone & Joint Surg.*, January, 1954) have found that a modification of Kocher's incision gives excellent exposure of the hip joint and allows the introduction of a femoral head prosthesis without difficulty. An angulated skin incision is centred over the greater trochanter. The distal limb of the incision extends along the line of the femur for about 15 centimetres, and the proximal limb of the incision (about 12 to 15 centimetres long) angulates posteriorly from the tip of the greater trochanter towards a point which is three fingers' breadth anterior to the posterior superior iliac spine. The dense gluteo-femoral fascia is incised at the lower end in line with the femur and at the upper end along the anterior border of the gluteus maximus. The author states that this clearly exposes the external rotators of the hip and the greater trochanter. The external rotators, namely the *piriformis gemelli*, *obturator internus* and part of the quadratus femoris, are divided in line with the femoral shaft, a cuff of muscle being left at their insertion to facilitate later reattachment. The gluteal muscles are not disturbed. Retraction of the external rotators reveals the posterior hip capsule, which is then incised or resected to expose the joint. If it is desired, the hip may be dislocated posteriorly by flexion and internal rotation of the extremity. In closure, the capsule may be sutured without difficulty. The rotator muscles are approximated. The next and most important layer, the gluteo-femoral fascia, is closed, and the subcutaneous tissue and skin fall together without difficulty.

Tibial Collateral Ligament Strain.

FRANK B. SMITH (*J. Bone & Joint Surg.*, January, 1954) has during the past five years met with 50 patients who presented the clinical picture of "chronic tibial collateral ligament strain". He states that, although it was not suggested by the history or demonstrated by the usual clinical tests, internal derangement of the medial meniscus was suspected because only partial or temporary relief was obtained by the usual conservative orthopedic measures, such as local radiant heat, hot packs, diathermy, multiple "Novocain" injections, irradiation, long casts and arch supports. The exploration of the knees of 30 patients confirmed the suspicion of derangement. The degree and type of derangement varied from patient to patient, but the symptom-producing mechanism was essentially the same in all; that is, part or all of the middle third of the medial meniscus was deformed as well as dis-

placed or herniated out of the medial joint space and wedged beneath the tibial collateral ligament. It was therefore assumed that displacement of the meniscus had caused either overstretch of the fibres of the adjacent ligament or irritation of the ligament and its bursa. Because of this assumption the medial meniscus of each patient was removed. None has had recurrence of his symptoms. This would seem to substantiate the conclusion that the medial meniscus derangement, though not demonstrated clinically, was responsible for the tibial collateral ligament syndrome in each patient and that the treatment of choice is arthrotomy with removal of the medial meniscus.

Fracture-Dislocation of the Hip.

MARCUS J. STEWART AND LEE W. MILFORD (*J. Bone & Joint Surg.*, April, 1954) consider that dislocation of the hip is an emergency demanding immediate reduction. Manipulative reduction should take precedence over treatment of all other skeletal injuries and even abdominal injuries. Open reduction of the acetabulum may be delayed, provided the dislocation of the femoral head has been reduced. Post-operative immobilization is necessary only to maintain stability. If fractures are stable, there is no indication for prolonged restriction of weight-bearing. Early active and vigorous exercise to restore muscle function and to prevent degeneration of the articular cartilage is a major feature of therapy. Early exercise does not tend to promote the deposition of calcium or the development of *myositis ossificans*. The authors state that the age of the patient has little influence upon the end result. Avascular necrosis is the result of disruption of the blood supply to the femoral head and is possibly the result of intracellular molecular changes in the femoral head incidental to force and counterforce imposed at the time of injury. The average rate of the development of avascular necrosis is the same, regardless of the method of treatment. Arthritis develops in direct proportion to the severity of the fracture and the extent of vascular damage. Injuries to the sciatic nerve warrant exploration if their effects persist for two weeks without improvement.

Fracture-Dislocation of the First Metacarpal Bone.

HOWELL E. WIGGINS AND WARNER D. BUNDENS (*J. Bone & Joint Surg.*, July, 1954) have treated 28 patients suffering from fracture or fracture-dislocation of the first metacarpal bone by intramedullary fixation. Anatomical reduction was achieved and maintained in all the cases except two. There were no cases of residual instability, subluxation, non-union or significant degree of loss of joint function. With the patients under adequate anaesthesia, the metacarpophalangeal joint of the thumb is flexed by an assistant to approximately 110°. Gentle traction is maintained along the axis of the metacarpal whilst it is held in an abducted and slightly extended position. The authors point out that this manoeuvre usually results in an anatomical reduction of the typical Bennett's fracture, but direct pressure over the dorsal or dorso-lateral surface of the base of the first metacarpal may occasionally be necessary. In addition, position is checked by X-ray examination. A medium-sized Kirschner wire is then

inserted through the extensor apparatus of the metacarpophalangeal joint into the posterior aspect of the centre of the head. The authors have found that once this wire has been started correctly, it traverses the medullary canal without difficulty and enters the centre of the greater multangulum. The wire is then cut off one centimetre distal to the skin. A glove type of plaster cast is applied which includes the thumb but permits full movement of the remaining four digits. Immobilization is continued for four weeks, after which the intramedullary wire is removed without anaesthesia, and active use of the thumb is begun. The authors point out that intramedullary fixation of these fractures permits splinting of the thumb in the position of function.

Nuclear Herniations of the Inter-vertebral Disc.

A. C. Bagg (*J. Bone & Joint Surg.*, May, 1954) states that, as a result of degenerative changes in the inter-vertebral disc, nuclear tissue often herniates through its confining structures. These lesions are common even in children, and often lead to difficulty in diagnosis. The nucleus pulposus may herniate through the anterior part of the annulus. Nuclear material may extrude along radial cracks which develop in the disc. Its tracks may be followed radiologically if it calcifies, or the site of the annular tears may be demonstrated by the "vacuum phenomenon". When this phenomenon is seen, it is presumed that under the influence of longitudinal strains tending to separate the adjacent vertebral bodies, as in hyperextension of the spine, the gases in solution in the degenerated disc tissue are liberated and may be demonstrated lying within the disorganized disc. When the tension is removed, the gas disappears. As nuclear tissue passes forwards it may breach the anterior fibres of the annulus to impinge upon the tough anterior longitudinal ligament, which usually deflects it to cause an erosion of the anterior border of the centrum. The nucleus pulposus may herniate beneath the epiphyseal ring. If this occurs it is almost invariably confined to the lumbar part of the spine. The sites of the nuclear herniation seem to be determined by mechanical factors, for they are found in adults in the lower lumbar part of the spine and in children in the upper lumbar part of the spine, in those parts of the spine which form the zenith of the spinal curve on flexion and which are therefore subjected to the greatest compressing force. The effect of such a nuclear herniation has frequently been misinterpreted as a "persistent epiphysis". When the nuclear material escapes from the disc and passes through the thin cartilage plate at its junction with the epiphyseal ring, the volume of the disc decreases and its function is impaired, so that the stress on the anterior vertebral margins during flexion of the spine is increased. As the anterior part of the centrum is firmly fixed, the strong body separates along the line of the nuclear herniation as a result of compressing strains. The segment detached is almost invariably found lying within the limits of the anterior longitudinal ligament, but sometimes it is the inferior margin of the centrum that separates. Occasionally, however, the posterior part of the epiphyseal ring may be affected, for the epiphyseal ring encircles the

centrum and is not incomplete posteriorly as is often stated. These lesions therefore should be regarded more properly as pathological fractures of the centrum, and indeed sometimes a considerable proliferation of new bone is initiated. The author points out that an understanding of the significance of the radiological findings in herniation of the nucleus pulposus and a careful correlation with the clinical features of the case are necessary for accurate diagnosis.

Osteoid Osteoma in the Hand.

ROBERT E. CARROLL (*J. Bone & Joint Surg.*, October, 1953) states that the history of all cases of osteoid osteoma is essentially the same. The persistence of pain is a common finding. The pain is of an aching nature; it is readily borne during the day, but greatly disturbs the rest at night. No pangs of acute pain urge the patient to seek aid. Strangely enough, the pain is commonly relieved by a single dose of aspirin. No physiological reason has yet been ascribed to this phenomenon. The pain has usually been present for several months; it has not been sufficient to limit the use of the hand. The author believes that by far the most pertinent factor in the diagnosis is the X-ray appearance. There are three locations for the nidus of osteoid osteoma. The location of the nidus in the medullary spongy bone is not uncommon. It produces sclerosis of the entire cortex and shaft; the area can usually be spotted in the skiagrams. About as common is the case of the nidus located in the cortex of the bone. Dense layers of sclerotic bone enlarge the shaft throughout the area. The medullary cavity and opposing cortex can be free of sclerotic change. The small lucent nidus can usually be found in the centre of the sclerotic spindle. Locating the nidus may often be extremely difficult. The most unusual form of osteoid osteoma is one in the periosteal location, where the nidus elevates the periosteum. There may be a thin wafer of osseous tissue covering it. The adjacent cortex may show little or no sclerosis, or it may become quite sclerotic. The femur and tibia are the most commonly involved bones. The bones of the foot are involved twice as often as those of the hand. The author states that the treatment is surgical extirpation of the nidus and points out that it is surprising that relief of symptoms may occur even when the nidus is not totally extirpated. Treatment with antibiotics has not been found to have any effect on this tumour. The author has found that upon exposure of the bone beneath the periosteum, the cortical thickening of the osteoid osteoma can be seen. This difference in sclerotic bone change becomes readily apparent when the osteotome is used to section the bone. In the bite of an osteotome, normal bone feels like wet hardwood, but the incising of sclerotic bone feels as though one were hewing brittle ivory. The cortical fragments splinter easily and tend to laminate while being removed. The nidus of the osteoid osteoma is generally found to be of brownish-red colour. Its consistency on curettage feels like that of soft cancellous bone. In the case of the periosteal type of osteoid osteoma, no bone division is necessary. The microscopic findings consist of a well demarcated nidus of osteoblastic tissue with osteoid intercellular substance. Around this area, the bone tends to be sclerotic.

British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on July 29, 1954, at the Robert H. Todd Assembly Hall, British Medical Association House, 135 Macquarie Street, Sydney. Dr. T. Y. NELSON, the President, in the chair. Members of the Bar Association and of the Incorporated Law Institute were present by invitation.

Criminal Responsibility.

Dr. J. A. McGEORGE read a paper entitled "Medico-Legal Aspects of Psychiatry" (see page 689).

Dr. Nelson reminded those present that some time previously the members of the medical and legal professions had combined and formed a society at whose meetings combined medico-legal subjects were to be discussed. That society had not met for some time; but it had been thought that that evening's meeting would be a good opportunity to invite some members of the legal profession to be present and to take part in the discussion. Dr. Nelson then welcomed the members of the Bar Association and of the Incorporated Law Institute who had come to the meeting.

Dr. D. W. H. ARNOTT, in opening the discussion, said that Dr. McGeorge had enlivened a dry-as-dust subject and given a clear exposition of the difficult field of medico-legal psychiatry. He had called attention to a most significant judgement of the High Court in regard to insanity and criminal responsibility—namely, that of Stapleton's case, in which the M'Naghten rules had for the first time been widened, in that they accepted that a person might know that an act was legally wrong, yet not know that it was morally wrong. The case for modification of the M'Naghten rules was well expressed in the following judgement of Mr. Justice Dixon in the case of *Tunbury v. Coffee*:

The Court was not bound to go on applying views held over a century ago about mental disturbance and insanity and to disregard modern knowledge and understanding of such conditions.

Dr. Arnott said that he wished to call attention to one whose vision was much ahead of time and who had foreseen the necessity of a more liberal interpretation of the law concerning insanity and responsibility; that was Mr. Justice Sir James Fitzjames Stephen, who published in 1883 "A History of the Criminal Law of England". Dr. Arnott then quoted a few opinions from his section on insanity and the law:

- (i) The existence of an insane delusion and even the existence of insane depression or excitement of spirits apart from specific delusions may be evidence that the person affected was labouring under such a defect of reason from disease of the mind that he did not know what he was doing was wrong.
- (ii) Any insane delusion, impulse or other state which is commonly produced by madness is a fact relevant to the question whether or not he can control his conduct and as such may be proved and ought to be left to the jury.
- (iii) Where madness is proved, the jury should be allowed to return any one of three verdicts—(1) guilty, (2) guilty but his power of self-control was diminished by insanity, and (3) not guilty on the ground of insanity.
- (iv) The question—what are the mental elements of responsibility? is and must be a legal question. It cannot be anything else, for the meaning of responsibility is liability to punishment, and if criminal law does not determine who are to be punished under given circumstances, it determines nothing. The elements . . . are knowledge that an act is wrong and power to abstain from doing it. This is the province of the Judge to explain to the Jury. The province of the medical man is to state such facts that might influence these two elements of responsibility.

Dr. Arnott said that such opinions were in keeping with modern psychiatric thought.

Dr. W. S. DAWSON said that it seemed to him that the matter of responsibility was very much simpler in New South Wales, because it was fairly certain that no person found guilty would be hanged. He thought that the question of determination of responsibility, provided that the death sentence was not going to be carried out, was after

all not of great importance. The point was that the accused should be found guilty or not guilty; the question then arose as to his disposal. If he was found guilty of a major charge, he would be out of circulation for a period, and they had to trust the prison authorities and the medical staffs to see that the fair thing was done by such a prisoner. If he was found to be insane or otherwise mentally disturbed, presumably he would be put into the appropriate institution or given the appropriate treatment. Related to that point was the difficult question of the so-called psychopathic personality; the term applied to queer, unstable, irresponsible individuals who were not insane, but who were a trouble to society and a source of discord and difficulty within penal institutions. Dr. Dawson thought that there was a general opinion that some sort of special provision was needed for them within the prison system, as they could not be found irresponsible according to the M'Naghten criteria. Dr. Dawson then asked Dr. McGeorge what was the position of a medical practitioner who was invited to examine a patient on the order of a stipendiary magistrate, and the patient refused to see him. Could the medical practitioner force himself on such a patient's presence? Would he be guilty of committing an assault or trespass by forcing an entry? What sort of assistance could be given such a medical practitioner who was put in such an embarrassing situation? Dr. Dawson said in regard to certification that he quite agreed that the presence of delusions and hallucinations was of great assistance in providing convincing material. However, there were many instances in which conduct was apparently grossly disordered or the patient was mute, and there was nothing to put down on the nature of the delusion or hallucination, and yet a fairly convincing certificate could be made out. A further question asked by Dr. Dawson was what was actually included or expected in the term "carefully examine". He had in mind the question of the physical condition of the patient, the extent to which one should form an opinion as to a physical basis for a mental disorder, and also the question how far one was responsible for the safe transfer of the patient to an institution—a patient who might be seriously ill physically, but who also showed some gross and disturbing disorder of mind. Dr. Dawson said that he assumed some sort of physical examination would necessarily be expected of the doctor in the term "carefully examine". With regard to the question of partial insanity, Dr. Dawson asked whether Dr. McGeorge allowed that there could be partial insanity, and yet the patient might have some testamentary capacity; that was so according to the *Banks v. Goodfellow* judgement, provided that a delusion did not so pervert the reason that the patient neglected the reasonable claims of the members of his family. Dr. Dawson finally referred to the hope expressed by Dr. McGeorge for a more harmonious relationship between the medical and legal professions. He thought that that was a very good reason for the revival of that moribund body the Medico-Legal Society of New South Wales.

Dr. D. R. MORGAN said that there were three things on which he would like Dr. McGeorge to enlarge. The first was the period of time during which the medical certificates, (i) under an Order and (ii) under Request, were legally valid. Sometimes a great deal of unhappiness was caused to relatives, particularly in the case of certification under a Request, when they found that the time had expired and the patient was unable to enter a mental hospital. Dr. Morgan called attention to the position of the medical practitioner practising on his own in a country town, and asked Dr. McGeorge to comment on the Certificate of Emergency, which was a provision of which doctors could avail themselves in such circumstances. Dr. Morgan also asked Dr. McGeorge to say what was a psychiatrist, as it was not defined in Section 100a of the *Lunacy Act*, in which the provision was made that a consultant "psychiatrist" could be called.

Mrs. GWENDOLINE GATES (solicitor) said that she had always thought that there should be some "getting together" of the medical profession and the legal profession. She was certain that if this was done, the professions would find provisions which they could draw up jointly and perhaps as a body present to the Government, so that amendment in important branches of law might be obtained. Mrs. Gates said there were two things which occurred to her at that moment. The first had to do with sexual offenders. As a mother she felt very concerned that with small children there was always a feeling of anxiety, especially when they started going to school. She thought that when a sexual offender had been convicted on more than one occasion, perhaps he should be kept in custody in some way to protect the children in the community. At the present time it often happened that such offenders were let loose again, and they committed offences on many occasions and finally often ended by murdering somebody. Mrs. Gates thought that probably psychiatrists

felt much more sympathetic towards them than the community, but nevertheless it did seem that they should in some way be kept from harming children. Another point that had been touched on was the Lunacy Act. Mrs. Gates wondered, without casting any slur on the psychiatrists, whether it was a little dangerous for one psychiatrist to have a person sent to the Reception House. She had heard of such a case; and the psychiatrist was not in any way dishonest in his opinion. The person concerned drank very much. She would probably be classed as a chronic alcoholic. She lived apart from her husband, who apparently obtained legal advice, and it was decided that it would be a good idea to have her committed as an alcoholic. One day the psychiatrist arrived at her home; she was very belligerent towards him, being quite drunk and suspicious. Mrs. Gates did not know what examination he made of the patient, but he formed the opinion that she was insane. The next step apparently was to have her committed to the Reception House. A police car arrived, and the woman was forced into it, to the horror of her daughter, and not even allowed to take any clothes with her. She was kept at the Reception House for one week's observation, then for another week, with the husband expecting that she would be declared insane and committed to an asylum; but apparently the psychiatrists there decided that she should not be deemed insane. She was allowed to go free; and as far as Mrs. Gates knew she was still free, and probably still an alcoholic. Mrs. Gates thought that some way should be found to deal with such a situation, other than committing a person to the Reception House; it must be a severe shock to such a person suddenly to find herself in the Reception House. Perhaps such people could be warned, or brought before a magistrate first, and so given an opportunity either to pull themselves together or voluntarily to seek some treatment. If they did not take the opportunity, then some other way would have to be found.

Miss J. E. SHEWCROFT (barrister) said that as some mention had been made of the desirability of a joint move between the medical and legal professions, she could tell those present that the legal women of Sydney (the Women Lawyers' Association of New South Wales) had made a move, and had actually preceded the British Medical Association in inviting Dr. McGeorge to address them. On a future occasion later in the year the legal women were to have a joint meeting with the medical women (the Medical Women's Society of New South Wales), and on that occasion they proposed to discuss adoption laws and divorce laws. Later still they hoped to discuss dangerous drugs. They hoped for support from the men of both professions.

Mr. H. H. BELL (barrister) said that he was not a criminal lawyer and had no great fund of knowledge; but one comment he wished to make arose out of a remark made by Professor Dawson, who considered that the distinction between guilty and not guilty, at least in New South Wales, was largely academic. In that connexion the thought came to mind that the attack made by many people on the M'Naghten rules was largely begging the real question. The real question was surely the object of the punishment. When once it had been decided that a man had done an action which action in itself was ordinarily liable to be punished, then surely the real problem was what should be done with him, not what he should be called. That distinction, with the exception of the law of testamentary capacity and inheritance, was in his opinion largely academic, and if any attempt was to be made to bring the law up to date, it should be rather from the point of view of the punishment, than from that of the verdict that should be brought in.

Mr. D. B. GRUZMAN (solicitor) said that most lawyers looked at the problem of an insane person from the point of view of his understanding of his affairs. Mr. Gruzman asked whether it was possible under the present system for a person suffering from some type of delusion or hallucination who nevertheless was capable of conducting his normal affairs, to be committed to a mental institution. If the answer was in the affirmative, why was it so?

Mr. ALAN H. LOXTON (solicitor) said that it seemed to him that what the medical side of the camp seemed to be missing was the purpose of the lawyer in attacking the problem. The lawyer had ever before him the problem of preserving peace and order, which he did through the courts. Therefore, as Dr. McGeorge had said, the lawyer was concerned with responsibility. Although insanity might be an essentially medical condition, that condition was only one of the factors which a court had to take into account when dealing with the case in hand. The court was primarily concerned with the community's welfare, and, in theory, it was involved in the application of some sanction. The old case of *R. v. Haynes* was one in which the question of irresistible impulse was involved. In that case, the judge had said there were

only three sanctions which could apply. The first was the sanction of conscience, the second was the sanction of religion, the last was the sanction of the law. The strongest of the whole three was the sanction of the law, and it by widening the scope of the defence of insanity the sanction of the law was lost, then in that case the greatest and most powerful sanction and society's greatest protection would be lost. That was what the courts always had in the back of their minds. Mr. Loxton went on to say that he had been interested in the importance psychiatrists placed on the two recent cases of Windle and Stapleton, because it did appear that the judgement of Lord Goddard in Windle's case was not a prepared judgement. (Mr. Loxton thought that he himself was, in that opinion, borrowing from the judgement of the Chief Justice, Sir Owen Dixon, in Stapleton's case.) Lord Goddard had followed his own judgement in *R. v. Rivett*, which was the only authority which he cited in Windle's case. That rather supported the opinion held by a number of people that, in England, the courts had temporarily gone astray, because there was a whole line of authority in England which supported Stapleton's case; it was only a logical result of the law. It was Windle's case which had gone astray. Mr. Loxton said that that was only a thought, and might be quite wrong; but as a matter of fact it was borne out by the judgement in Stapleton's case, which gave a review of the law prior to M'Naghten's case, as well as a discussion of the rules as laid down. In that case, the Chief Justice made it apparent that the decision reached was only the same as the result that the Court had already come to before 1843. Dr. McGeorge had said that he thought it necessary to have a verdict of guilty but insane. Mr. Loxton said that to the academic lawyer, that was a *non sequitur*, because according to the law two things had to be shown before a conviction could be achieved; one was that the man had a mind, or a mens, and the other was that the mens was guilty. The question of insanity notionally attacked the first of these; if the man was insane, he had not a mens. Therefore he could not be guilty, and the only logical verdict was that he was not guilty. Mr. Loxton thought it unnecessary to be too hidebound about the question. If a man was guilty of murder or some other capital offence, the court had to sentence him to death. Perhaps the proper way to attack the problem was to deal with that first, and abolish automatic capital punishment. Then there could be added such an intermediate verdict as Dr. McGeorge had suggested. Then, once the man had been found guilty and a rider had been passed, an attempt could be made to bring the parole and prison systems up to date. Mr. Loxton himself thought that the greatest scope for amendment of the law lay there.

Dr. Nelson, from the chair, thanked Dr. McGeorge for his paper; he had been much impressed with Dr. McGeorge's determined cheerfulness about what was to most people a rather gloomy subject. Dr. Nelson said that he thought the general practitioner would appreciate most of all Dr. McGeorge's remarks about certification, because it presented a real problem. It had been suggested that the provision for sending people to the Reception House should be reviewed; Dr. Nelson thought that most general practitioners would regard that askance, because they found that provision one of the most useful safeguards that they had in practice.

Dr. McGeorge, in reply to Dr. Arnott, said that he agreed that it was an extraordinary thing that much wisdom appeared in the earlier works on law rather than the later ones. There was a lamentable tendency on the part of the legal profession to hold extraordinary views about psychiatry, and for members of the medical profession to hold extraordinary views about the law. The result was the disharmony of which he had already spoken. At the Commission on Capital Punishment, which had been held in England a year or so previously, the British Medical Association offered some suggestions, one of which was that loss of emotional control should be included in the M'Naghten conception of irresponsibility at law. Fortunately that had not been adopted; Dr. McGeorge believed that it would lead to all sorts of extraordinary statements being made on behalf of the prisoner. In reply to Professor Dawson, Dr. McGeorge said that he could not agree that the question of responsibility was not the prime consideration, because if a prisoner was found not guilty on the grounds of insanity, he became a Governor's pleasure prisoner. That meant that his prospects of release when his mental stability was more or less assured were much greater than if he was convicted of murder straight out. If he was convicted of murder, his sentence was commuted to life imprisonment, and that meant that at the end of fifteen years he might apply for his release. It was quite possible for an insane person who recovered to be released in a matter of one or two years. Dr. McGeorge felt that the interests of the insane prisoner were better served if an attempt was made to obtain a

verdict of "guilty but insane". Dr. McGeorge said that psychopaths formed a very interesting group. Also, he had never found two psychiatrists who were in complete agreement as to the definition of a psychopath. That made the question difficult. If by a psychopath Professor Dawson meant a criminal psychopath, a person who was continually in and out of gaol, such a person was now adequately dealt with under the *Habitual Criminals Act*. He was sentenced and committed to an indeterminate stay on completion of that sentence. Ordinarily the sentence was rather less than he would be given if he was not declared an habitual criminal. That was known familiarly at the Penitentiary as the "Kathleen Mavourneen" ("It may be for years and it may be for ever"). Such people had no prospect of release unless they could persuade the Consultative Committee to make a recommendation to the Minister, who would then refer it to the Parole Board. Dr. McGeorge thought that a desirable advance in the prison procedure and the parole procedure. One speaker had made the comment that improvement was needed in prison and parole procedure. The late Judge Markell had been sent to America by the Government to study prison and parole methods there, and the Comptroller General of Prisons had gone both to England and to America. They had both returned and said exactly the same thing—that the methods in the gaols in New South Wales compared more than favourably with those overseas. The reason why people thought that overseas prison systems were better than those in Australia was that they received greater publicity. Most people were not aware that there was a rehabilitation centre at Goulburn Gaol, and men there were trained in many trades and occupations. If they could be trusted and were first or second offenders, they were sent to Berrima Gaol, where they were very happy. At the Goulburn Gaol they had a first-class orchestra; its strength was kept up by the fact that generally only "lifers" were allowed to become members. Professor Dawson had raised the question of whether one could force oneself on a patient on a magistrate's order. Dr. McGeorge was firmly convinced that the answer was yes, because one was acting on the order of a magistrate who had received information on oath. Another question raised by Professor Dawson was that of partial insanity. Dr. McGeorge said that he himself was referring to the M'Naghten conception of delusions affecting only one subject. He agreed that in most of the cases of testamentary capacity there was partial insanity in the sense of mental deterioration only; there might be transient lucid intervals in which the person was quite capable of making a will, and there were many cases in which that had been held. On the matter of the Medico-Legal Society of New South Wales, Dr. McGeorge said that he would be glad to see it revived. He hoped that the present combined meeting might be the first step in its reestablishment. Dr. Morgan had drawn attention to an oversight on Dr. McGeorge's part, the period of time during which medical certificates were good. In the case of an order, a medical certificate was valid for twenty-eight days; in the case of a request, it was valid for only ten days, dating from the earlier of the two medical certificates. In reply to Mrs. Gates's remarks about the patient being taken to the Reception House, Dr. McGeorge pointed out that alcoholics were not sent there as being insane; they were sent there for their own protection, for observation and treatment. Often there was nothing else that could be done for them; the average general hospital was not competent to deal with an alcoholic. Mr. Bell had said that the question was not so much what a man was called as what was done with him. Dr. McGeorge said that he could not quite agree on that point, because the medical man was trained to make a diagnosis before he attempted treatment. That rather suggested that the man was going to be treated (by being sentenced) before it was determined what his condition was. Dr. McGeorge thought that in justice to the prisoner care should be taken that he received every consideration. It was an elementary legal principle that everything that could be said in his favour must be said, and that applied to medical evidence just as much as it did to the address of the defending counsel. Mr. Gruzman had asked whether a delusional or hallucinated patient could manage his affairs and be committed to an institution. Dr. McGeorge said it must be assumed that he could not, because the Master in Lunacy took charge of his affairs; therefore it was reasonable to assume that he did so because, although the patient was not declared incapable, he had been declared insane and it was assumed that he was incapable. Another speaker had suggested that a lawyer had to preserve law and order. That was very true. He had suggested that insanity was only one aspect. That also was very true. There again emphasis was placed on the old belief that the law must be paramount. That was a happy conceit which lawyers had fostered through the generations, and which medical men had, also through the generations, viewed with

a certain amount of scepticism. They were in the unfortunate position of not being able to express their scepticism in court. Dr. McGeorge reminded the speaker that the doctor should think primarily of the welfare of his patient. Dr. McGeorge said that he thought that the reference to Windle's case not being accepted was not quite correct. In the 33rd edition of Archbold's "Criminal Law and Practice", which had just been published, Windle's case was referred to and seemed to be regarded as the present authority; Stapleton's case was treated rather off-handedly. The same applied to Professor Glanville Williams's recent text-book on criminal law, although he did criticize the decision in Windle's case. However, if one went right back to 1313, it was mentioned that a man was found "*demens et furiosus non per feloniam*" ("he was quite nuts but he did not do it purposely"). That showed that even in those early days they were prepared to accept that insanity was, if not an excuse, at least an extenuating circumstance. Dr. McGeorge in conclusion thanked all those who had joined in the discussion for their comments and criticism.

A MEETING of the Victorian Branch of the British Medical Association was held at the Alfred Hospital, Prahran, Victoria, on May 5, 1954. The meeting took the form of a series of clinical demonstrations by members of the honorary medical and surgical staffs of the hospital.

Hiatus Hernia.

In a discussion on hiatus hernia Dr. R. R. ANDREW presented the clinical aspects, Dr. K. N. MORRIS the surgical aspects and Dr. C. R. LAING the radiological aspects.

Dr. Laing showed several series of films. The first series provided examples of the various types of hiatus hernia. It was pointed out that although the diagnosis of the larger hiatus herniae was readily made at a barium meal examination, or even by direct radiography in the case of the large herniae extending up into the mediastinum or out into the lung fields, the diagnosis might be quite difficult in the smaller sliding herniae. These might require special "positioning" for their demonstration and, even when outlined, had to be differentiated from a phrenic ampulla. The type of mucosa lining the pouch might give a lead in the differentiation between a sliding hernia and phrenic ampulla; but the demonstration of reflux of barium from the stomach back into the oesophagus was an all-important point in the differentiation and every endeavour should be made to demonstrate the presence of reflux.

Dr. Laing then discussed a series of films showing a gastric ulcer lying in the herniated portion of the stomach and also films showing stricture formation and oesophageal ulceration as complications arising from peptic oesophagitis secondary to a hiatus hernia.

The final series of films were presented as a reminder that although a hiatus hernia might be present and might appear to explain the patients' symptoms, other causes of dyspepsia or dysphagia might be present in addition to the hernia. One patient with a large sliding hernia also had a pathological non-functioning gall-bladder as shown by cholecystography, while another patient with a paraoesophageal hernia had, in addition, a carcinoma of the pyloric segment of the stomach. The last patient had a pharyngeal pouch in addition to the hiatus hernia.

Hexamethonium as a Cause of Oedema.

Dr. T. E. LOWE and Dr. J. R. E. FRASER demonstrated studies of fluid balance in 17 patients with severe hypertension treated by methonium compounds. Continuous methonium therapy precipitated fluid retention in nine patients. This change proceeded to the stage of oedema in four patients, but tended in most to be self-limiting. The significance of this phenomenon was discussed.

Selection of Patients for Arterial Grafting.

Dr. A. J. BARNETT discussed the subject of the selection of patients for arterial grafting. He said that, briefly, the main factors considered in the selection of patients were, first, the severity of symptoms, second, the general condition of the patient, and third, the anatomical site and extent of the block and nature of vessels above and below it. The pathological cause of the occlusion was not of primary importance, and grafting could be recommended in the presence of acute and chronic occlusion of varied origin. The patient should have symptoms severe enough to warrant the extensive surgical intervention required—for example, a claudication distance less than 200 yards, severe rest pain or threatened gangrene. The patient's general condition should be such that he could withstand the operation and

could reasonably benefit from it. Thus, the operation would not be advised for very old, feeble persons, or for those with evidence of severe cerebral or coronary atherosclerosis. The block must involve blood vessels of moderately large calibre, and reasonably good vessels must be shown above and below it.

Dr. Barnett illustrated these points with a series of patients. The first was a man, aged sixty years, who had been admitted to hospital on December 11, 1953. He had suffered for five months from aching in the left foot produced by walking and eased by rest, and also from coldness of the left leg. Three months before the time of his admission to hospital he had developed pain in the left foot, cramping pain in the left calf, and numbness in the left foot immediately after digging in the garden. Since then, he had had pain in the left foot on walking 200 yards, eased by rest. He was a well-controlled diabetic and a moderately well-controlled epileptic. Examination of the patient revealed a blood pressure of 130 millimetres of mercury, systolic, and 70 millimetres, diastolic, with no abnormality in the heart, lungs or abdomen. Examination of his peripheral vascular system revealed that in the lower limb the right and left femoral pulses were present as well as the right popliteal, *dorsalis pedis* and posterior tibial pulses; but on the left side, the popliteal, *dorsalis pedis* and posterior tibial pulses were absent. Arteriography revealed a complete block of the lower part of the left femoral artery over a length of about three inches. The diagnosis was made of *atherosclerosis obliterans* with thrombosis of the lower part of the left femoral artery. At operation on December 17 by Dr. C. J. Officer Brown, resection of the blocked segment of artery was carried out with replacement by graft. The left foot became flushed immediately after insertion of the graft. The *dorsalis pedis* pulse returned, but not the posterior tibial pulse. Treatment was given with heparin. A brisk haemorrhage occurred from the wound two days after operation, and secondary suture of the wound was performed four days after operation. Deep venous thrombosis in the left leg and a small pulmonary infarct appeared two weeks after operation. However, the patient was much improved after the operation. His left foot was warm, and he no longer had claudication. He had some oedema of the left leg from the venous thrombosis, but this was controlled by an elastic stocking.

The second patient, a man, aged sixty-three years, had been admitted to hospital on December 14, 1953, with a history of several months' pain in the left calf on exertion. Six months before his admission to hospital a plank had fallen on his left foot, injuring especially his great toe. The foot was swollen, tender, blue, painful and cold. Two months before his admission to hospital he had suffered a further injury to the left foot by being hit with a piece of concrete. Three weeks before his admission to hospital the left great toe had become gangrenous. His general health was good. Examination of the patient revealed a blood pressure of 140 millimetres of mercury, systolic, and 80 millimetres, diastolic. He had emphysema in the chest, but his heart and abdomen appeared to be normal. Examination of the left leg revealed dry gangrene of the left great toe, with the plum colour of incipient gangrene spreading proximally over the dorsum of the foot. No arterial pulses were palpable in the left groin or below this point. In the right leg no trophic changes were apparent. The femoral pulse was palpable, but the popliteal and ankle pulses were absent. Arteriography carried out consisted of aortography and femoral arteriography. Aortography showed both iliac vessels on the right side and also the left common and internal iliac arteries, but not the external iliac artery. Femoral arteriography showed that the common and deep femoral arteries were patent, but the superficial femoral artery was blocked. A diagnosis was made of *atherosclerosis obliterans* with occlusion of the left iliac and superficial femoral arteries, and gangrene of the left great toe. At operation on December 22 by Dr. K. N. Morris, resection of the thrombosed section of artery deep to the inguinal ligament was carried out with replacement by stored arterial graft. It was noted that the thrombosed segment was not as long as had been supposed from the arteriograms. That was considered to be due to slow filling of the patent proximal part of the external iliac artery. After operation, the patient was treated with heparin. Secondary suture of the wound was carried out four days after operation. The left foot became warmer, and weak popliteal and *dorsalis pedis* pulses could be felt. The skin of the foot proximal to the gangrenous toe became normal in colour. A good line of demarcation developed between the gangrenous and living tissue, but as the toe was slow to separate, it was removed surgically in February, 1954. This resulted in cellulitis of the foot, which subsided on treatment with "Aureomycin". Dr. Barnett said that in this case of severe ischaemia, with at least two major arterial

blocks, resection of one block and arterial grafting had probably saved the patient's leg.

Symptom Assessment in Hypertension.

DR. H. B. KAY and DR. DONALD DUFFY illustrated the clinical assessment of symptoms accompanying hypertensive states by means of data obtained from a two-year study of some 121 cases. Headache occurred in 63 cases, but only seven of the patients concerned were considered to have experienced headache directly caused by their hypertension. Anxiety states, rheumatic disorders, sinus infection and migraine accounted for the remainder. Dyspnoea was encountered in 66 cases; in 15 of these the patients had cardiac failure; in 45 symptomatic relief was obtained by the practice of breathing exercises. Attempts to record changes on a Benedict-Roth spirometer were unsuccessful in representing any corresponding change in respiratory function. Symptomatic relief was obtained in most cases by purely non-specific measures designed to improve physical fitness and by mild sedation. The use of various hypotensive agents was discussed.

Pulmonary Hypertension.

DR. J. M. GARDINER showed two patients suffering from primary pulmonary hypertension. The first patient, a married woman, aged thirty years, had developed dyspnoea and dizziness on effort three and a half years before the time of her admission to hospital. Two and a half years before the time of admission to hospital she had developed oedema of the ankles and had spent nine months in bed. She had also had three attacks of syncope on exertion. One and a half years before admission to hospital she had suffered from severe congestive failure and had been investigated in the Royal Melbourne Hospital by Dr. J. M. Etheridge, a diagnosis being made by catheterization. Examination of the patient revealed that she had flushed cheeks, often with a cyanotic tinge. The jugular venous pulse was increased with a and b waves. No central cyanosis or clubbing was evident. The pulse was small, and the blood pressure was 120 millimetres of mercury, systolic, and 90 millimetres, diastolic. Examination of the cardiac impulse revealed a strong right ventricular lift. The second heart sound was narrowly split and loud in the pulmonary area. A blowing systolic murmur could be heard at the cardiac apex and along the left sternal edge of the heart, but no diastolic murmurs were audible. Electrocardiography revealed evidence of right ventricular hypertrophy. X-ray examination showed cardiac enlargement involving the right ventricle with a prominent main pulmonary artery, no "plethora" and rather clear peripheral fields. There was no left auricular enlargement. In February, 1953, the patient was admitted to the Alfred Hospital for further cardiac catheterization. This showed the following points: a resting pulmonary artery pressure ranging from 76 to 86 millimetres of mercury, with a mean of 47 millimetres; a normal pulmonary capillary pressure (2.5 millimetres of mercury); the absence of left-right shunt; normal arterial oxygen saturation (97.5%); a low resting cardiac output (two litres per minute per square metre); high pulmonary peripheral resistance. The injection of 50 milligrammes of "Priscol" into the pulmonary artery resulted in a slight fall in pulmonary pressure, a rise in flow and a 40% fall in pulmonary peripheral resistance. It was thought that oral administration was worth a trial, and the patient was now being maintained on oral "Priscol" therapy, 75 milligrammes five times a day, with regular administration of digitalis and mercurial diuretics. She felt that her range of activity had increased.

The second patient, a married woman, aged forty years, had four and a half years before her admission to hospital experienced one night dyspnoea of sudden onset followed by syncope. Her effort tolerance was diminished, and she had occasional breathless attacks. Two years later she began to get oedema of the ankles and noticed a large pulsation in her neck. One year before her admission to hospital she had suffered from pneumonia, which was followed by persistent cough and the production of mucoid sputum but no haemoptysis. Examination of the patient revealed that she had a puffy face with flushed cheeks and a cyanotic tinge. The jugular venous pulse was increased with a and b waves. She had no central cyanosis or clubbing. The pulse was small, and the blood pressure was 110 millimetres of mercury, systolic, and 90 millimetres, diastolic. Examination of the cardiac impulse revealed a right ventricular lift. A split cardiac first sound was audible, especially in the pulmonary area, and the second heart sound was split and accentuated in the pulmonary area. A soft systolic murmur was heard maximal within the apex, but no diastolic murmurs were audible. Hepatic enlargement with pulsation was present. An electrocardiogram showed evidence of right ventricular

hypertrophy. X-ray examination showed cardiac enlargement involving the right ventricle with a very prominent main pulmonary artery and hilar branches and clear peripheral fields. No increased pulsation was seen, nor was there any left auricular enlargement. In September, 1953, cardiac catheterization was carried out at the Alfred Hospital. It showed the following points: a resting pulmonary artery pressure ranging from 100 to 42 millimetres of mercury, with a mean of 61 millimetres; no evidence of left-right shunt; arterial oxygen saturation slightly below normal (93%); a low resting cardiac output (1.6 litres per minute per square metre); high pulmonary resistance. Injection of 50 milligrammes of "Priscol" into the pulmonary artery resulted in a slight fall of pulmonary pressure and a considerable increase of pulmonary flow with a fall of pulmonary resistance. Oral "Priscol" therapy was thought to be worth a trial, and the patient was now being maintained on regular treatment with digitalis, mercurial diuretics and "Priscol" five times daily. She managed her household duties.

Eisenmenger Syndrome.

Dr. Gardiner next showed a woman, aged twenty-three years, who since early childhood had been unduly breathless on exertion and had suffered from cyanosis of the fingers and face, especially on exertion. She had no history of squatting on effort. She was able to carry on a sedentary job as a typist, and there had been no progression of symptoms. Examination of the patient revealed central cyanosis and clubbing of the fingers and toes without a definite difference between the upper and lower limbs. The pulse was normal. Her blood pressure was 105 millimetres of mercury, systolic, and 80 millimetres, diastolic. No signs of cardiac insufficiency were evident, and the heart was normal in size. A right ventricular lift was detected on examination of the cardiac impulse. The second heart sound was clearly split at the pulmonary area, but no bruits were audible. An electrocardiogram showed evidence of right ventricular hypertrophy. X-ray examination showed no general cardiac enlargement, but the main pulmonary artery was very prominent. The peripheral pulmonary vessels were normal. Cardiac catheterization showed pronounced pulmonary hypertension with pulmonary artery pressure approximately that of the systemic pressure. There was no evidence of pulmonary stenosis or of a left-right intracardiac shunt. The route of the right-left shunt was not determined, but it was probably from the right ventricle to the aorta.

Ebstein's Anomaly of the Tricuspid Valve.

Dr. Gardiner's last patient was a young man, aged nineteen years, who had been cyanosed at birth and had been very difficult to rear. He was not able to keep up with other children because of tiredness, was always backward at school, and suffered from blue face and hands on cold days. At the age of ten years he began to suffer from "blackouts". These appeared to be epileptic in origin and were not associated with changes in cardiac rhythm. He could do reasonably heavy work without dyspnoea. Examination of the patient revealed peripheral cyanosis of the cheeks and hands, often severe, but no definite central cyanosis. He had a very small pulse, his blood pressure was 115 millimetres of mercury, systolic, and 85 millimetres, diastolic. No a wave was present in the jugular venous pulse. The cardiac impulse was very quiet, and no right ventricular lift was detected. A soft systolic murmur was audible at the apex, and a diastolic murmur was heard on occasion. The second heart sound was split at the pulmonary area. An electrocardiogram showed complete right bundle branch block, large P waves and first-degree atrio-ventricular block, which varied. X-ray examination showed much enlargement of the heart involving the right auricle and right ventricle. The auricle pulsed vigorously, but the ventricle showed no visible pulsation. The main pulmonary artery was not dilated, and there was no pulmonary plethora. Cardiac catheterization showed pulmonary artery and right ventricular pressures at the lower end of normal, and no pulmonary stenosis or left-right shunt was apparent. Arterial oxygen saturation was at the lower limit of normal (94%). On withdrawal of the catheter through the right ventricle, the form of the tracing altered from a typical "ventricular" curve to an auricular type of tracing at a point about a third of the distance between the cardiac apex and the right cardiac border—in other words, when it still appeared to lie within the inflow tract of the ventricle. That tracing and the tracing in the right auricle comprised presystolic and systolic waves of low amplitude.

Aortic Pulmonary Septal Defect.

Dr. C. J. OFFICER BROWN showed a boy, aged thirteen years, who had presented with clinical signs of typical patent

ductus arteriosus. Thoracotomy was carried out on March 10, 1947. The ductus was found not to be patent, and it was decided that the patient had an aortic pulmonary septal defect. He had remained fairly well except that he was underweight and developed frequent respiratory infections. He was becoming increasingly less active. In December, 1953, operation was carried out to close his aortic pulmonary septal defect. Convalescence was uneventful, and the murmur completely disappeared.

Coarctation of the Aorta.

Dr. Officer Brown's second patient, a man, aged thirty-one years, had been discovered to have a congenital heart condition in infancy, but had been able to continue hard manual work until recently, and was for some time a professional boxer. Two and a half years before seeking treatment he was found to have a high blood pressure. He was now quite unable to do anything strenuous. Examination of the patient revealed a blood pressure of 240 millimetres of mercury, systolic, and 90 millimetres, diastolic, in the right arm. The systolic blood pressure in the right leg was 140 millimetres of mercury; the diastolic reading could not be determined. The femoral pulses were just palpable, but delayed. A systolic murmur and an early diastolic murmur were audible at the aortic area. An electrocardiogram showed sinus rhythm with left ventricular preponderance and uncertain evidence of right-sided heart strain. The patient was admitted to hospital in August, 1953, for an angiogram and was readmitted in November, when the coarctation was excised and an aortic graft inserted. He collapsed a short time after being returned to his bed, but recovered rapidly and was given two pints of blood by transfusion. Next day he was found to be suffering from right hemiplegia with slurred speech. He improved rapidly in relation to this and was discharged from hospital in January, 1954, with complete recovery except for some weakness in his right hand. His blood pressure was 150 millimetres of mercury, systolic, and 85 millimetres, diastolic, in his right arm, and had remained at approximately that level.

Tuberculous Tracheal Stenosis.

Dr. Officer Brown then showed a married woman, aged twenty-seven years, who in October, 1950, had undergone left pneumonectomy and thoracoplasty for pulmonary tuberculosis. Twelve months later, sputum examination again showed the presence of tubercle bacilli, and bronchoscopy showed gross tuberculous tracheitis. The condition responded to chemotherapy, but in September, 1952, bronchoscopy showed stenosis of the trachea with a lumen measuring four to five millimetres in diameter. Tomograms and bronchograms showed the stenosis. In March, 1953, a wire-supported dermal graft was inserted into the trachea. The result was a normal tracheal lumen with complete relief of symptoms.

Bronchial Adenoma.

Dr. Officer Brown's last patient was a married woman, aged forty years, who for two years had been bringing up small amounts of bright blood. Clinical examination of the chest revealed no abnormality, and the appearance of a standard X-ray film was within normal limits. However, a film taken during full expiration showed obstructive emphysema of the left lung, and tomograms showed a tumour in the left stem bronchus. Bronchoscopy showed a bronchial adenoma of the left stem bronchus. At operation in October, 1952, the left stem bronchus was excised with end-to-end anastomosis of the resulting group of bronchial ends. Bronchoscopy now showed a good bronchial lumen, and bronchograms showed a normal filling of all segments of the lung, except the apical segment of the lower lobe.

Ophthalmological Demonstration.

Dr. W. M. Box presented patients with dermoid tumour of the conjunctiva, asteroid bodies in the vitreous in a diabetic patient, disciform degeneration of the retina, central vein thrombosis in a hypertensive patient, medullated nerve fibres and benign melanoma of the choroid and *acanthosis nigricans*.

Dr. H. H. JOHNSON presented a series of patients with hypertensive retinopathy who had been under review for two or three years, and also patients with diabetic retinopathy.

Squint.

Dr. PERCY H. COWEN showed a series of patients suffering from squint. The first patient was suffering from incomitant squint and paresis of the right external rectus. The patient was shown to differentiate incomitant from concomitant squint, as shown by variability of the angle of squint in the

different directions of gaze. The second patient, who had a divergent blind eye, was shown to illustrate how the eyes were normally held parallel by binocular vision. Of other patients shown, one with concomitant convergent squint (accommodative type) had been cured by glasses, and another with concomitant convergent squint had been cured by operation. A patient with concomitant intermittent divergent squint had been cured by orthoptics. Another patient shown provided an illustration of the overaction of inferior oblique muscles with vertical squint.

Radiological Investigation of the Biliary Tract.

DR. B. L. DEANS, DR. K. H. ROBERTSON and DR. B. TAFT showed films illustrating radiological investigation of the biliary tract.

Lymphosarcoma of the Alimentary Tract.

DR. A. V. JACKSON and DR. J. BARNETT discussed the pathology of lymphosarcoma of the alimentary tract. Macroscopic specimens with clinical histories, "Kodachrome" photographs and histological preparations were used to demonstrate that primary lymphosarcoma of stomach or bowel, though certainly not common, were not excessively rare. Unlike carcinoma, lymphosarcoma appeared to be commoner in small than in large bowel.

The Results of Gastrectomy for Peptic Ulcer.

DR. ROBERT S. LAWSON showed a representative series of 12 patients (nine men and three women) to demonstrate the after-results of gastrectomy for peptic ulcers, at periods from six months to five years after operation. He said that the indications for operation were previous perforation with recurrence of symptoms in five cases, history of severe hæmatemesis in four cases, and severe and prolonged symptoms in three cases. Nine patients had had duodenal ulcers, all with pronounced hyperchlorhydria, while three patients with gastric ulcer had had normal or low acid curves on test meal examination. After operation, all patients were improved in health and digestion, and in eight the late results had been excellent in every way. Two others lost weight (about one stone each over five years), although otherwise they were well enough; and two more still suffered with "nerves", though without any digestive symptoms. There were no cases of recurrent ulcer or other post-gastrectomy syndrome or complication, and no case of secondary anemia. None of the nine men had lost time from work since operation. Post-operative test meal examinations revealed a state of achlorhydria in nine patients, this being considered as one index of a satisfactory operation. The remaining three patients had pronounced hypochlorhydria. The conclusion from the study and presentation of these patients was that the late results of a partial gastrectomy (of the Pólya-Hofmeister type) were almost uniformly satisfactory when it was performed adequately and for the right indications.

College of General Practitioners.

ANNUAL MEETING.

THE first annual meeting of the New South Wales Regional Faculty of the College of General Practitioners was held in the Robert H. Todd Assembly Hall, British Medical Association House, 135 Macquarie Street, Sydney, on September 24, 1954, Dr. W. A. Conolly in the chair.

Annual Report and Financial Statement.

The annual report and financial statement were read and adopted. The annual report is as follows.

Officers of the Faculty Board.

Chairman: W. A. Conolly.

Vice-Chairman: T. E. Y. Holcombe.

Honorary Secretary: T. R. Street.

Honorary Treasurer: C. Warburton.

Committee: G. N. M. Aitkens, K. C. T. Rawle, F. P. M. Solling, C. W. S. Dun.

Chairmen of Committees: Undergraduate education, T. E. Y. Holcombe; post-graduate education, C. Warburton; research, G. N. M. Aitkens.

Formation of the Faculty.

It is not yet a year since a few members of the New South Wales Branch of the British Medical Association were appointed as a Committee to go into the question of forming a College of General Practitioners in New South Wales. This Committee consisted of Dr. Aitkens, Dr. Conolly, Dr. Solling and Dr. Warburton.

At its first meeting, held on October 30, 1953, at Pymble, the Committee decided to form a Regional Faculty of the British College of General Practitioners, which had been founded in London on November 19, 1952. It was felt that the organization of this College and the wise counsel of its members could be invaluable to us in our formative stages. This has proved to be correct, and we are deeply indebted to our Mother College for her practical assistance and encouragement.

As in Great Britain, so here our aim is to enlist the sympathy and support of the Faculty of Medicine and its Post-Graduate Committee, the British Medical Association and the Royal Colleges. We are pleased to record our appreciation for the interest shown by Professor E. Ford, Dean of the Faculty of Medicine (Sydney), Dr. V. M. Coppleson, Honorary Director, Post-Graduate Committee in Medicine in the University of Sydney, the New South Wales Branch Council of the British Medical Association, and many leading specialists, members of the Royal Colleges.

The College of General Practitioners has its headquarters in London, and Dr. W. N. Pickles was installed as the first President on November 14, 1953. On the occasion of the inauguration of the College of General Practitioners of Canada on June 17, 1954, Dr. Pickles stated: "It is my firm hope and belief that the inauguration of our colleges will be a turning point in the history of general practice; and that the patient endeavour of each will inevitably raise its standard, and perpetuate the high ideals which we associate with this great branch of our profession."

The aims of the College in Canada have been well summed up by its first President, Dr. M. R. Stalker, as follows: "It will be the function of the college, to lead, to stimulate, to reward, and to find ways and means to overcome, at least in part, that serious handicap—the isolation of the general practitioner. . . . For those of us past the meridian of our careers, there will be much to give with little to receive. For those in the active, productive years of life, there will be much to give in leadership and support, and considerable rewards also. The greatest benefit will be to the youth of our profession, and to those yet to come."

For ourselves it must be our aim to foster in the undergraduate and young graduate the high ideals of general practice, to encourage them to become general practitioners with a determination to perpetuate the status of the family doctor as physician, adviser and friend.

It is not sufficient to be complacent about our present standard of general practice, even if by world standards it is a high one. Standards must not only be maintained but be improved, and our function will be to advise and assist in this high endeavour. The support and practical assistance of our senior members will be necessary for this purpose.

Secretarial Arrangements.

Dr. D. Lawson (Cessnock) for the first few months, and then Dr. T. Street (Sydney), have performed yeoman service as the Honorary Secretaries of the Faculty, at no cost to us. Dr. V. M. Coppleson has kindly allowed us to use the Post-Graduate Committee Rooms at 131 Macquarie Street, Sydney, as our postal address and has promised to help us with our secretarial arrangements. However, with the growth of our secretarial work, it will be necessary to employ a part-time secretary and obtain a room of our own, so that our members can be kept informed of our activities and requirements.

Membership.

There are 80 members and 12 associate members, mostly from New South Wales, but including members from Victoria, South Australia, Western Australia, New Zealand, Lord Howe Island and New Guinea.

Criteria for Associate Membership.

Recommendations from the College Council for associate membership are as follows:

1. That the acceptance of an associate be automatic on receipt of application form and such entrance fee or annual subscription as may be determined.

2. That a person shall be eligible for admission as an associate if he (a) is a registered medical practitioner, (b) gives an undertaking that he will continue approved post-graduate study if he remains in active general practice, and

that he will uphold and promote the aims of the College to the best of his ability.

Criteria for Membership.

It is clear that, whatever criteria are adopted, they should try to ensure that successful applicants for membership of the College not only are giving as good a service to their patients as is possible under the conditions in which they have to work, but also are prepared to make an effort to maintain and improve their standards throughout their working lives. A most careful consideration of all the suggested criteria has failed to reveal any one which would invariably admit to membership the many different types of good family doctors.

Council recommends as follows:

1. A person shall be eligible to apply for admission as a member of the College if he complies with the following conditions: (i) He is a registered medical practitioner who has been qualified for not less than seven years. (ii) He is proposed and seconded by two members of the College, these sponsors not being in partnership with each other. (iii) He has been engaged in general practice either for a minimum period of five years, or for a minimum period of three years as an Associate of the College.

2. An applicant for membership must satisfy the Council of the College of the high standard of his work in general practice by (i) evidence submitted by the applicant himself, on an application form, concerning his practice, experience and academic and administrative achievements, (ii) supporting evidence obtained by Council from the applicant's sponsors, the Board of his Faculty, or others whom he or his sponsors have chosen to appoint.

3. An applicant must also (i) be prepared to submit himself to an interview with the Censors, if required, and (ii) give an undertaking that he will continue approved post-graduate study while he remains in active general practice, and that he will uphold and promote the aims of the College to the best of his ability.

Research.

Dr. G. Aitkens, as Chairman of the Research Committee, has prepared a circular to be sent to all members, and when replies are received he will prepare his report.

Finance.

The entrance fee has been fixed at £12 12s., and £6 11s. 3d. (£5 5s. sterling) of this amount is forwarded to the College in London.

The entrance fee for associate members is £1 6s. 3d.

The annual subscription will be decided upon at the annual meeting.

Undergraduate Training Committee.

1. The Faculty of Medicine has been approached, and two lectures have been granted to the College this year. The first will be delivered by T. R. Holcombe on October 1, 1954, on preventive and social medicine in general practice. The other will be delivered on October 29. In addition, a voluntary lecture will be arranged through the Chairman, at which the College and general practice will be discussed.

2. Three big nursing organizations have been approached and will take undergraduates under their wing and show them what is done by by district nurses in poor homes.

3. The four big teaching hospitals have been contacted and, through their student supervisors, we hope to get students to avail themselves of our offer to show them something of general practice and out-patient and casualty work in the small hospitals. This will be after their coming examinations and in the long vacation probably.

4. Members of the Faculty of Medicine have been contacted and harangued to throw their weight in where the interests of the College are concerned. We have some opponents, but many well-wishers.

5. The newly formed faculty in Queensland have paid us the compliment of requesting information on our procedure in New South Wales.

Report of Post-Graduate Education Committee.

The first post-graduate gathering of the New South Wales Regional Faculty of the College is to take place at Dormie House, Moss Vale, on November 5, 6 and 7. This will constitute the first step in the preliminary stage of post-graduate training for general practitioners under the auspices of the College. There is much to be done, and this

week-end simply constitutes a "trial run", and it is hoped that as many members and their wives as possible will come to this week-end gathering to help in developing the post-graduate training.

During this early formative stage of the post-graduate section of the College I have received the help and advice of the Chairman and Secretary and other members of the Foundation Committee, but several members have expressed their willingness to become members of the post-graduate subcommittee, which, when formed, will formulate plans for the future. One of the first steps will be to approach the Post-Graduate Committee of the University and cooperate with them in any plan or policy which may be suggested towards raising the standard and status of the general practitioner.

Also, as a beginning in hospital post-graduate training, the Royal Newcastle and the Mater Misericordiae Hospitals have been made available to members for residence and practical experience in any subject they desire.

I ask all members to be patient and not to expect too much all at once, for in this section, as in all others of the College, progress must be slow if a firm foundation is to be laid. It will depend largely on how each and every one of you lends a hand and so helps to build a first-class College for the future.

Report of Research Committee (Dr. G. Aitkens).

The opportunities for the general practitioner to make observations of diseased states under circumstances unique to his sphere of medical work are undeniable. This branch has been formed to assist the man who wishes to work on his own and to form study groups of practitioners with mutual interests.

The promulgation of news regarding the geographical incidence of disease and other clinical material will be of great significance.

Members of the College should be able to take part in this activity to some degree, and it is hoped that ultimately the research branch will become of major importance to the College.

By-Laws.

The proposed by-laws of the Faculty were read and adopted with amendments.

Election of Officers.

The following office-bearers were elected:

Warden: Dr. K. C. T. Rawle.

Faculty Board: Dr. W. A. Conolly, Dr. T. E. Y. Holcombe, Dr. R. C. Geeves, Dr. T. R. Street, Dr. G. N. M. Aitkens, Dr. K. W. Alexander, Dr. D. A. Brown, Dr. C. W. S. Dun, Dr. C. Everingham, Dr. G. J. Duncan, Dr. G. L. Howe, Dr. R. C. Huntley, Dr. C. F. Laidlaw, Dr. C. Warburton, Dr. D. A. Warden, Dr. R. M. Allport, Dr. B. A. Cook, Dr. R. S. Irwin, Dr. R. J. Jackson, Dr. L. O. Rutherford (the last five as regional members), Dr. A. Rumore (associate member).

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

FROM CAPTAIN COOK'S DIARY, SEPTEMBER, 1777.¹

I RETURNED on board my ship attended by Otoo's mother, his three sisters and eight more women. At first I thought that this numerous train of females came into my boat with no other view than to get a passage to Mataval. But when we arrived at the ship, they told me they intended passing the night on board, for the express purpose of undertaking the cure of the disorder I complained of: which was a pain of the rheumatic kind extending from the hip to the foot. I accepted the friendly offer, had a bed spread for them on the cabin floor and submitted myself to their directions. I was desired to lay myself down amongst them. Then as many of them as could get around me began to squeeze me with both hands from head to foot, but more particularly on the parts where the pain was lodged till they made my

¹ From the original in the Mitchell Library, Sydney.

bones crack and my flesh became a perfect mummy. In short, after undergoing this discipline about a quarter of an hour I was glad to get away from them. However, the operation gave me immediate relief, which encouraged me to submit to another rubbing down before I went to bed: and it was so effectual that I found myself pretty easy all the night after. My female physicians repeated their prescription the next morning before I went ashore and again in the evening when they returned on board: after which I found the pains entirely removed: and the cure being perfected they took their leave of me the following morning. This they call romeo: an operation which in my opinion far exceeds the flesh brush or anything of the kind that we make use of externally. It is universally practised amongst these islanders, being sometimes performed by the men, but more generally by the women. If at any time one appears languid and tired and sits down by any one of them, they immediately begin to practise the romeo upon his legs: and I have always found it to have an exceedingly good effect.

Correspondence.

APPENDICEAL COLIC.

SIR: After reading Dr. Robert Southby's informative article (M. J. AUSTRALIA, August 28) I suggest with some diffidence that a frequent cause of appendiceal colic (as opposed to inflammatory or obstructive appendicitis) is irritation by the threadworm *Enterobius vermicularis*. I have on various occasions found this parasite in the appendix removed for such attacks, and have several times lately postulated pre-operatively that it was the cause of the trouble and would be found at operation; and such was found to be the case.

My own opinion is that *Enterobius* must now be regarded as a normal inhabitant of the human digestive tract, at any rate in children in this district. Its incidence in children in all localities, including Melbourne, in which I have lived in recent years leads me to think that it is probably as common in other parts as I know it is here. It is very frequently symptomless, and I have for two or three years past ceased to follow the teaching that all children in a family should be treated simultaneously; for although a child may by appropriate treatment be rendered parasite-free, it will probably soon become reinfected by its friends, children's habits being what they are. I now treat only those patients who exhibit clinical evidence of irritation or other trouble, whilst explaining to parents the method of transmission and the measures necessary to avoid such transmission.

In passing, I have a feeling that in some cases worms in the appendix are protected from the action of vermifuge drugs, later emerging from this cul-de-sac to reinfest the remainder of the colon.

Yours, etc.,
GORDON OXER.

40 Brookman Street,
Kalgoorlie,
Western Australia.
September 18, 1954.

CONCERNING PROCTOLOGY.

SIR: Dr. Starr (September 11, 1954) is dissatisfied with accepted techniques in proctology, as he feels that the results obtained are not fully in the best interests of the patient. Therefore, in the interests of progress he uses a less conventional method, not, I feel certain, that he thinks his primary efforts are going to give one hundred per cent. results, but that a new technique may be evolved that will lead to consistently good results in operations in which, to say the least, the conventional method presents many a pitfall to the patient. He realizes that convention is the prevention of invention.

Dr. Lawes (October 2, 1954) obviously follows the conventional methods, which over the years have given no thought to the surgical aftermath of pain and stricture formation, which occurs all too often in operations in this area.

Years of observing various surgical techniques and technicians from the head of the operating table have convinced me that many conventional methods are most inconsistent. To cite the most common of major abdominal procedures—removal of the appendix. Here the generally, but not

invariably, accepted technique is to carbolize the appendix stump before burying it in the walls of the caecum. I have yet to see a gross infection of the walls of the caecum occurring whether or not the stump is carbolized. However, I have seen many infections of the wound in the abdominal wall without ever having seen any surgeon attempt to carbolize this area. The inconsistency of the conventional technique is very obvious in this one case only.

Good luck to Dr. Starr in his efforts at progress, for the future of medicine depends on men of his calibre.

Centaur House,
Queen Street,
Brisbane.
October 6, 1954.

Yours, etc.,
WIN. FOWLES.

THE ENIGMA OF THE MONA LISA SMILE.

SIR: Dr. Trinca's letter about the much-debated smile on the face of the Mona Lisa awakened in me a shattering sense of my extreme ignorance. Moreover, it made me wonder what he would produce if impelled to offer a criticism of, say, the Laocoön. After reading Lessing's critical essay on that famous sculpture I thought that this kind of analysis had gone about as far as it could go (apologies to "Okla-homa"!).

I now realize that a course in metaphysics, applied psychology, advanced physiology and biochemistry might help me to follow Dr. Trinca's exposition. In my simple way, having seen the original painting in the Louvre in 1911 (two days before it was stolen), I had always regarded it as a charming portrait of a smiling young woman who knew she was being painted and was wondering if her expression was just right. I seem to have seen a similar expression on so many other faces, which probably only goes to show how unobservant one can be.

Yours, etc.,
A. W. J. BULTEAU.

3 Plunkett Street,
Kirribilli,
New South Wales.
October 7, 1954.

SIR: I followed with great interest the discussion centring around the Mona Lisa smile. Dr. Trinca is perfectly right saying that "two distinct types of face and accompanying mood and expression" emerge in two halves of Mona Lisa's face. I would add that they emerge in every face. I employed and showed at the British Medical Association meeting at Sydney Hospital two years ago in a similar way, like Abrahams in France, but for other purposes, the vertical face bisecting method to show the dominance of the right face in right-handed persons and of the left face in left-handed persons. It could be shown by bisecting vertically pairs of twins that the similarity of the composition picture belonged to the twin whose right half was represented in the picture. Similar experiments were done with left-handed twins and with children twins. It is intended to publish these observations, and space does not allow me to go into details.

The general conclusion is that the dominance of the right face in right-handed persons corresponds to the dominance of the right arm and is due to better innervation, sensitization and emotionalization of the muscles of the right face. With the biological growth these persons acquire more and more individual behavioural patterns in their right face, and then it starts to represent their individuality.

Coming back to Mona Lisa, it is not necessary to assume a birth palsy as Dr. Temple Smith did to explain the asymmetry of her face. It may also not be necessary to assume, as Dr. D'Ombrain did, that Da Vinci consciously attempted to represent his two mothers in two halves of the Mona Lisa's face. He probably painted her from a model, factual or imaginative, Lady Lisa, and if so he could easily project his two mothers into the model and then reproject them and condense in one face. But as a painter he would probably rather use the technique of superimposing facial expressions timely during each sitting and achieve in this way not one but many expressions of one or more persons and represent in a pictorial way combined trends of one's personality.

That the left half of Mona Lisa's face carries more expression and individuality could be explained by the fact that Da Vinci himself was left-handed and could have a greater perceptive appreciation of left side that could go *pari passu* with the dominance of his left eye, as suggested by Berner

and Berner recently and discussed under "Ocular Dominance, Handedness and the Controlling Eye" in "Current Comment" of your Journal on April 17, 1954.

It would still have to be explained why the dream scenery in the background of the picture is different on the right and left side.

Yours, etc.,

217 Macquarie Street,
Sydney,
October 5, 1954.

I. A. LISTWAN.

SIR: Have we not had enough of pseudoscientific jargon about this picture? It would probably have been regarded merely as a very competent portrait by a master-artist if Walter Pater in the 'seventies had not written a lot of imaginative and poetic fancies about its subject—"of strange thoughts and fantastic reveries and exquisite passions", and so on. He wrote, however, in lucid, concise and intelligible English, of which he was an acknowledged master. It would be well if modern critics would strive to emulate him in this.

Yours, etc.,

141 Macquarie Street,
Sydney,
October 11, 1954.

E. TEMPLE SMITH.

[This correspondence is now closed.—EDITOR.]

RUBELLA (GERMAN MEASLES, ROTHEN, RUBEOLA).

SIR: I was interested to note the evidence presented by Dr. M. R. Harrison in his recent letter (M. J. AUSTRALIA, September 4, 1954) for a renewed incidence of congenital cataract associated with maternal rubella.

In a recent survey by Dr. H. B. Kay and myself of 600 cases of congenital heart disease seen at the Alfred Hospital since 1946, twenty-six had a history of maternal rubella in early pregnancy. All these cases were shown to have a patent ductus arteriosus, including three atypical cases recently reported (M. J. AUSTRALIA, September 4, 1954, page 388). A number had associated cataracts or deafness. Twenty-four of these cases were born between 1939 and 1944; the two remaining cases were infants, born in 1953.

Over the past year, two other infants with a maternal history of rubella in early pregnancy have been seen at the Queen Victoria Hospital. Both had congenital cataract and congenital heart disease, which was shown in one at necropsy to be a large patent ductus arteriosus. A further similar case was presented by Dr. Mostyn Powell at a meeting of the Melbourne Pediatric Society (M. J. AUSTRALIA, May 8, 1954, page 724), as one of a group of infants with patent ductus arteriosus and failure to thrive. It is thus clear that, after an interval of some years, congenital lesions are again appearing in Victoria associated with maternal infection with the rubella virus. It would be interesting to know of any other epidemiological evidence of recent change in the incidence or the character of this infection which might throw light on the recurrence of congenital lesions associated with it.

Yours, etc.,

J. M. GARDINER.

Cardiovascular Diagnostic Service,
Alfred Hospital,
Melbourne.
September 30, 1954.

NEUROSIS IN GENERAL PRACTICE.

SIR: A few decades ago Mackenzie in England, by his researches into cardiac disease, demonstrated the great opportunities afforded by general practice for its investigation, and development of the principles and methods of treating it. He surprised and impressed the profession by his insistence that general practitioners were strategically placed for pioneering work in this field.

Several years ago Dr. Pickles, an English general practitioner of simple and unassuming bearing, in the course of a lecturing tour to the British Medical Association of Australia, gave us the same message in regard to the investigation of the clinical and epidemiological aspects of the infectious diseases, based on experience and observation in his own country practice.

In your issue of September 11, Dr. Jansen, a young and little known general practitioner in an isolated South Australian country practice, has convincingly impressed on us

this identical principle applied to the investigation and treatment of the great mass of neuroses in all our practices. Like that of the abovementioned practitioners, his thesis is also firmly based on practical experience worked out largely on his own initiative.

There is a notable difference between the picture he gives us of most of the clinical material that appears in his consulting room and that handled and reported on by consulting psychiatrists. It is hard to avoid the conclusion that, when this work has been explored and developed by some of the more enterprising and up-to-date of our general practitioners, there will be established, instead of the present attitude of hopeless distaste, an entirely new conception of the majority of these cases, not only as to their nature, but also regarding their accessibility to rational analytic treatment and the comparative ease of their cure.

Yours, etc.,

"COUNTRY PRACTITIONER."

Undated.

YOUNG DOCTORS AND SPECIALIZATION.

SIR: Permit me to make a few remarks about the large number of young doctors specializing today without a substantial general background in either a knowledge of medicine as a whole, or human beings as people and not diseases.

It appears that, after two years in a teaching hospital and the acquisition of a diploma by examination, a young graduate may register as a specialist in surgery and take the responsibility for major procedures without more ado. I have noticed several cases personally and I am sure that there are many such other cases of young men with little general experience and a narrow sense of proportion setting up as specialists within several years of graduation. This is going to result in an eventual lowering of the standard of medical practice, and also a lowering of the esteem in which the public holds the profession as a whole. I think it should be necessary for anyone intending to specialize to have had at least five years' experience in a general practice before he be allowed to register. Hospital experience is one thing, but to acquire an appreciation of human feelings and family situations one must have had personal contact with people and their homes. In this way a doctor will learn that the art of medicine is much more than the science of disease, and he will be a better practitioner and a better human being. I think most will agree that the best specialists of today were general practitioners of years gone by.

Yours, etc.,

OWEN H. GREEN.

Ballina,
New South Wales,
October 10, 1954.

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Numbers 54 and 55, of September 2 and 9, 1954.

CITIZEN NAVAL FORCES OF THE COMMONWEALTH.

Royal Australian Naval Reserve.

Promotion.—Surgeon Lieutenant Martin Desmond Begley is promoted to the rank of Surgeon Lieutenant-Commander, dated 4th April, 1954.

Resignation.—The resignation of Benjamin Edward Brookman of his appointment as Surgeon Lieutenant is accepted, dated 30th June, 1954.

Royal Australian Naval Volunteer Reserve.

Termination of Appointment.—The appointment of Ewan Garth McQueen as Surgeon Lieutenant-Commander is terminated, dated 28th June, 1954.

AUSTRALIAN MILITARY FORCES.

To be Honorary Surgeon to the Queen.—Colonel Robert Officer, M.B., B.S., F.R.C.S., F.R.A.C.S., Royal Australian Army Medical Corps.

Regular Army Special Reserve.

VX700350 Captain P. J. Ryan relinquishes the temporary rank of Major and is transferred to the Reserve of Officers

(Royal Australian Army Medical Corps (Medical)) (3rd Military District), 14th July, 1954.

Citizen Military Forces.

Northern Command: First Military District.

Royal Australian Army Medical Corps (Medical).—1/10563 Captain A. J. Mooney is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (2nd Military District), 6th July, 1954.

Eastern Command: Second Military District.

Royal Australian Army Medical Corps (Medical).—The provisional rank of 2/146603 Captain B. L. Reid is confirmed. The provisional appointment of 2/165473 Captain (Temporary Major) J. E. D. Goldie is terminated, 31st March, 1954. To be Captain (provisionally) and Temporary Major, 1st April, 1954: 2/165473 John Ernest Dunlop Goldie. To be Captain (provisionally), 30th July, 1954: 2/127049 George Roy William McDonald.

Southern Command: Third Military District.

Royal Australian Army Medical Corps (Medical).—3/147517 Captain (provisionally) D. F. Mitchell relinquishes the provisional rank of Captain and is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (3rd Military District) in the honorary rank of Captain, 15th June, 1954.

Western Command: Fifth Military District.

Royal Australian Army Medical Corps (Medical).—To be Captain (provisionally), 13th July, 1954: 5/45805 Peter Edwin Hurst.

Tasmanian Command: Sixth Military District.

Royal Australian Army Medical Corps (Medical).—6/15415 Honorary Captain R. M. Hughes is appointed from the Reserve of Officers, and to be Captain (provisionally), 7th May, 1954 (in lieu of the notification respecting this officer which appeared in Executive Minute No. 114 of 1954, promulgated in *Commonwealth Gazette* No. 40 of 1954).

Reserve Citizen Military Forces.

Royal Australian Army Medical Corps.

1st Military District.—The resignation of Captain N. Y. McCallum of his commission is accepted, 9th July, 1954.

3rd Military District.—The resignation of Honorary Captain P. G. Castron of his commission is accepted, 13th July, 1954.

3rd Military District.—Lieutenant-Colonel H. F. Summons, E.D., is placed upon the Retired List (3rd Military District) and is granted the honorary rank of Colonel with permission to wear the prescribed uniform, 1st July, 1954.

The following officers are placed upon the Retired List within Military Districts and on the dates as shown, with permission to retain their ranks and wear the prescribed uniform:

1st Military District.—Major W. J. Chapman, Captain (Honorary Major) C. R. Boyce, Captains E. G. Free, R. G. Hamilton, T. B. Tronson, and Lieutenant D. C. Joycey, 14th May, 1954.

2nd Military District.—Colonel R. A. Money, C.B.E., M.C., E.D., Lieutenant-Colonels T. Hamilton, E.D., N. H. Meacle, E.D., F. W. Niesche and R. J. Stabback, Major J. B. Street, Captains W. G. Holt, H. J. Solomon, R. F. Tait and C. J. Zimmerman, and Lieutenant (Honorary Captain) L. D. Baker, 25th June, 1954.

3rd Military District.—Lieutenant-Colonel (Honorary Colonel) A. H. Green, C.B.E., E.D., Lieutenant-Colonel S. Plowman, Majors R. D. Smith, R. H. Stevens, C. Sullivan and T. L. Tyrer, Captains P. J. Chappill, M. C. Curwen-Walker, D. I. Fitzpatrick and A. B. Hewitt, and Lieutenant W. F. Johns, 1st July, 1954.

4th Military District.—Lieutenant-Colonels A. D. Lamphee and E. F. West, Majors A. F. Hobbs, H. G. Prest and R. H. Von der Borch, and Captain (Honorary Major) J. L. Day, 30th June, 1954.

5th Military District.—Lieutenant-Colonel (Honorary Colonel) F. J. Clark, Major (Honorary Lieutenant-Colonel) B. A. Hunt, M.B.E., Majors A. R. Home, E.D., and W. J. Pannell, and Captain F. S. Sedgwick, 30th June, 1954.

6th Military District.—Lieutenant-Colonel (Honorary Colonel) H. M. Fisher, O.B.E., E.D., Major J. S. Reid, Captain

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED OCTOBER 2, 1954.¹

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	2(1)	..	1(1)	..	..	..	..	..	3
Amoebiasis .. ..	..	..	1	..	..	..	..	..	1
Ankylostomiasis .. ..	..	..	..	..	..	..	..	..	..
Anthrax .. ..	..	..	..	..	..	..	..	..	..
Bilharziasis .. ..	..	..	..	..	..	..	..	..	..
Brucellosis .. ..	..	..	..	..	..	..	..	..	..
Cholera .. ..	..	..	..	..	..	..	..	..	1
Chorea (St. Vitus) .. ..	..	1(1)	..	..	..	..	..	..	1
Dengue .. ..	..	..	..	..	..	..	..	..	91
Diarrhoea (Infantile)	1(1)	20(16)	68(68)	1	2(2)	..	..	..	9
Diphtheria	4(3)	..	..	..	3(3)	1(1)	..	..	6
Dysentery (Bacillary) .. ..	..	..	3(3)	2(2)	..	..	..	..	1
Encephalitis .. ..	..	..	1	..	..	..	..	..	1
Filariasis .. ..	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice .. ..	..	..	..	..	..	..	..	..	..
Hydatid .. ..	..	..	..	..	..	..	..	..	64
Infective Hepatitis	34(17)	22(14)	..	..	2(1)	..	2	4	..
Lead Poisoning .. ..	..	..	..	..	..	..	..	..	..
Leprosy .. ..	..	..	..	..	..	..	..	..	..
Leptospirosis .. ..	..	..	..	..	..	..	..	..	2
Malaria .. ..	..	..	2(1)	..	..	..	..	..	7
Meningococcal Infection	1(1)	3(1)	1	1	1(1)	..	..	..	..
Ophthalmia .. ..	..	..	..	..	..	..	..	..	..
Ornithosis .. ..	..	..	..	..	..	..	..	..	..
Paratyphoid .. ..	..	..	..	..	..	..	..	..	..
Plague .. ..	..	..	..	..	..	..	..	..	17
Polomyelitis	1(1)	7(5)	4(2)	4(3)	1	..	..	..	1
Psittacine Fever	1	..	..	..	..	..	..	..	30
Rubella .. ..	..	14(7)	..	..	16(12)	..	..	..	..
Salmonella Infection .. ..	..	..	..	..	..	..	..	..	56
Scarlet Fever	16(15)	22(14)	4(4)	5(5)	3(3)	..	..	..	..
Smallpox .. ..	..	..	..	..	..	..	..	..	..
Tetanus .. ..	..	..	..	..	..	..	..	..	11
Trachoma .. ..	..	..	..	..	..	..	..	..	..
Trichinosis .. ..	..	..	..	..	..	..	..	..	106
Tuberculosis	52(41)	17(15)	18	9(5)	9(4)	1(1)	2	..	2
Typhoid Fever	1(1)	..	..	..	1(1)	..	..	..	..
Typhus (Flea-, Mite- and Tick-borne) .. ..	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne) .. ..	..	..	..	..	..	..	..	..	..
Yellow Fever .. ..	..	..	..	..	..	..	..	..	..

¹ Figures in parentheses are those for the metropolitan area.

(Honorary Major) W. J. Freeman and Captain A. J. R. Miller, 27th May, 1954.

The following officers are retired:

1st Military District.—Honorary Captains J. A. Arratta, J. B. Cribb and R. L. Rankin, 14th May, 1954.

2nd Military District.—Honorary Captain R. T. C. Hughes, 25th June, 1954.

3rd Military District.—Honorary Major J. Littlejohn and Honorary Captains B. R. Hallows and D. G. Renton, 1st July, 1954.

4th Military District.—Honorary Captains H. E. Pellew, E. J. Swann and F. E. Terrill, 30th June, 1954.

6th Military District.—Honorary Captain J. F. McCreary, 27th May, 1954.

ROYAL AUSTRALIAN AIR FORCE.

Permanent Air Force.

Medical Branch.

Squadron Leader (Acting Wing Commander) G. A. Leyland (04397) ceases to hold the acting rank of Wing Commander, 23rd June, 1954.

Notice.

GOLF TOURNAMENT.

A GOLF TOURNAMENT for the British Medical Association (New South Wales Branch) Cup, presented by Dr. H. C. Rutherford-Darling, will be held on Tuesday, November 9, 1954, on the links of the Australian Golf Club, Kensington. The tournament will be an 18-hole par competition. Entries, with entrance fee (including lunch and green fees) £1 5s., should be sent before noon on Friday, November 5, 1954, to Dr. H. M. Cutler, 185 Macquarie Street, Sydney, and should indicate the time of day most suitable for the competitor, his handicap and whether he desires to play with any particular competitor.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

Annual Subscription Course.

THE following two lectures, which have been arranged conjointly by the Post-Graduate Committee in Medicine in the University of Sydney, the Dermatological Association of Australia and the New South Wales Branch of the British Association of Dermatology, will be given by John T. Ingram, M.D., F.R.C.P., Senior Dermatologist at the General Infirmary, Leeds, and Lecturer in Skin Diseases, the University of Leeds, who is visiting Australia at the invitation of the Dermatological Association of Australia:

Tuesday, November 2: "Mycotic Infections of the Skin."

Thursday, November 4: "Psoriasis and Para-Psoriasis."

Both these lectures will begin at 8.15 p.m. in the Stawell Memorial Hall, 145 Macquarie Street, Sydney.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

GRADUATES of the University of Sydney are reminded that the quinquennial election of Fellows of the Senate will be held on November 10, 1954. Ten Fellows will be elected by graduates of the University. Election will be conducted by graduates voting personally or by voting papers transmitted through the post. Qualified voters may apply for voting papers in writing to the Registrar not later than the third day before the date of the election. All voting papers transmitted by post and received at the University not later than 5 p.m. on the date of election shall be counted in the ballot.

Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Dunn, Robert Harper, M.B., B.S., 1952 (Univ. Sydney), Obley Street, Cummoock, New South Wales.

Deaths.

THE following death has been announced:

GLASSON.—Robert Malcolm Glasson, on October 16, 1954, at Wellington, New South Wales.

Diary for the Month.

OCT. 30.—New South Wales Branch, B.M.A.: Branch Meeting.
Nov. 2.—New South Wales Branch, B.M.A.: Organization and Science Committee.
Nov. 3.—Western Australian Branch, B.M.A.: Council Meeting.
Nov. 5.—Queensland Branch, B.M.A.: Clinical Meeting.
Nov. 9.—New South Wales Branch, B.M.A.: Executive and Finance Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 295 Saint George's Terrace, Perth): Norseman Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Tasmania: Part-time specialist appointments for the north-west coast of Tasmania.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2-3.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and book-sellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rate is £5 per annum within Australia and the British Commonwealth of Nations, and £6 10s. per annum within America and foreign countries, payable in advance.